DOCUMENT RESUME

ED 416 232 TM 028 112

AUTHOR	Brick, J. Michael; Tubbs, Ellen; Collins, Mary A.; Nolin, Mary Jo; Cantor, David; Levin, Kerry; Carnes, Yuki
TITLE	Telephone Coverage Bias and Recorded Interviews in the 1993 National Household Education Survey (NHES:93). Working Paper Series.
INSTITUTION	Westat, Inc., Rockville, MD.
SPONS AGENCY	National Center for Education Statistics (ED), Washington, DC.
REPORT NO	NCES-WP-97-02
PUB DATE	1997-02-00
NOTE	127p.
AVAILABLE FROM	U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics, 555 New Jersey Avenue, N.W., Room 400, Washington, DC 20208-5654.
PUB TYPE	Numerical/Quantitative Data (110) -- Reports - Evaluative (142)
EDRS PRICE	MF01/PC06 Plus Postage.
DESCRIPTORS	Coding; *Data Collection; Discipline; Elementary Secondary Education; Estimation (Mathematics); *Interviews; National Surveys; *Research Methodology; School Readiness; School Safety; *Statistical Bias; Tables (Data); *Telephone Surveys
IDENTIFIERS	*Data Quality; *National Household Education Survey

ABSTRACT

The National Household Education Survey (NHES) is a data collection system of the National Center for Education Statistics (NCES), which has as its mission the collection and publication of data on the condition of education in the United States by providing information on those issues that are best addressed by contacting households rather than educational institutions. The NHES is a telephone survey of the noninstitutionalized civilian population of the United States. This paper addresses issues associated with the bias that might arise in estimates from the 1993 NHES because only households with telephones were sampled, and it assesses the data quality of recorded interviews from the survey. The focus in the study of bias is on the potential for bias in statistics for 3- to 7-year-olds corresponding to the School Readiness component population of the NHES:93. The analysis of undercoverage bias shows that the coverage bias for statistics on this age group is not large, even though large differences are reported for children living in telephone or nontelephone households. Results of the study of recorded interview data coverage indicate that the majority of the questions were read as written by the interviewer and respondents provided a codable response. Specific items that resulted in a greater than average number of problems are identified. Four appendixes contain the interview coding forms and frequency of rating information for the School Readiness Questionnaire, the School Safety and Discipline Parent Questionnaire, and the School Safety and Discipline Youth Questionnaire. (Contains 1 exhibit, 2 figures, and 17 tables.) (SLD)

ED 416 232

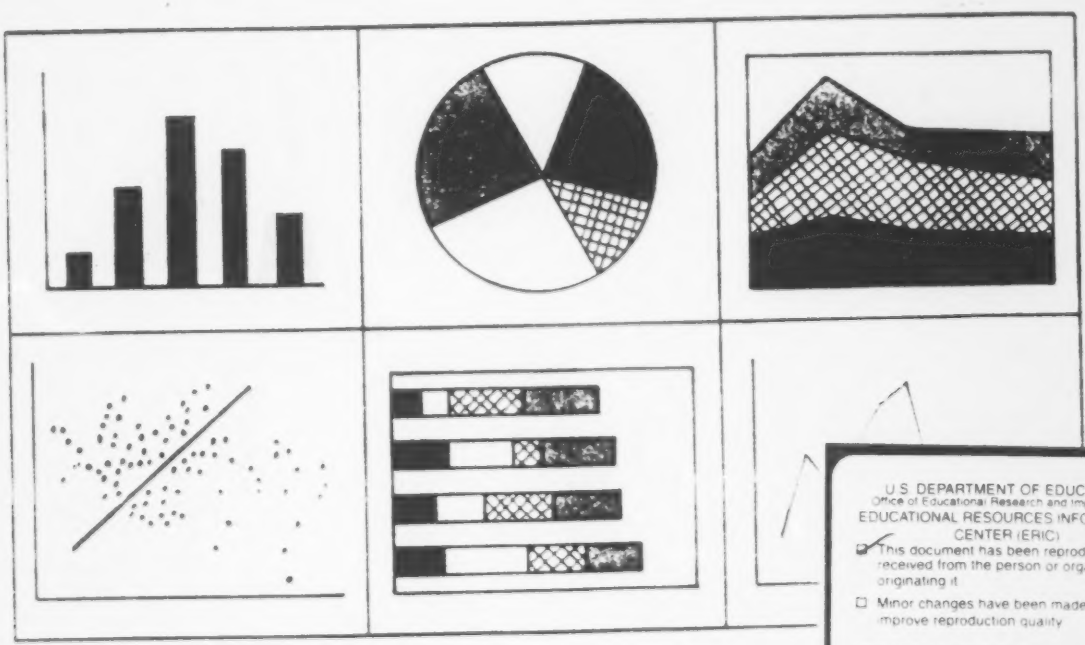
NATIONAL CENTER FOR EDUCATION STATISTICS

Working Paper Series

Telephone Coverage Bias and Recorded Interviews in the 1993 National Household Education Survey (NHES:93)

Working Paper No. 97-02

February 1997



U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

U.S. Department of Education
Office of Educational Research and Improvement

BEST COPY AVAILABLE

Telephone Coverage Bias and Recorded Interviews in the 1993 National Household Education Survey (NHES:93)

Working Paper No. 97-02 February 1997

Contact: Kathryn Chandler
Surveys and Cooperative Systems Group
(202) 219-1767
e-mail: nhes@ed.gov

U.S. Department of Education
Richard W. Riley
Secretary

Office of Educational Research and Improvement
Sharon P. Robinson
Assistant Secretary

National Center for Education Statistics
Pascal D. Forgione, Jr.
Commissioner

Surveys and Cooperative Systems Group
Paul D. Planchon
Associate Commissioner

The National Center for Education Statistics (NCES) is the primary federal entity for collecting, analyzing, and reporting data related to education in the United States and other nations. It fulfills a congressional mandate to collect, collate, analyze, and report full and complete statistics on the condition of education in the United States; conduct and publish reports and specialized analyses of the meaning and significance of such statistics; assist state and local education agencies in improving their statistical systems; and review and report on education activities in foreign countries.

NCES activities are designed to address high priority education data needs; provide consistent, reliable, complete, and accurate indicators of education status and trends; and report timely, useful, and high quality data to the U.S. Department of Education, the Congress, the states, other education policymakers, practitioners, data users, and the general public.

We strive to make our products available in a variety of formats and in language that is appropriate to a variety of audiences. You, as our customer, are the best judge of our success in communicating information effectively. If you have any comments or suggestions about this or any other NCES product or report, we would like to hear from you. Please direct your comments to:

National Center for Education Statistics
Office of Educational Research and Improvement
U.S. Department of Education
555 New Jersey Avenue, NW
Washington, DC 20208

Suggested Citation

U.S. Department of Education. National Center for Education Statistics. *Telephone Coverage Bias and Recorded Interviews in the 1993 National Household Education Survey (NHES:93)*, Working Paper No. 97-02, by J. Michael Brick, Ellen Tubbs, Mary A. Collins, Mary Jo Nolin, David Cantor, Kerry Levin, and Yuki Carnes. Project Officer, Kathryn Chandler. Washington, D.C.: 1997.

February 1997

Foreword

Each year a large number of written documents are generated by NCES staff and individuals commissioned by NCES which provide preliminary analyses of survey results and address technical, methodological, and evaluation issues. Even though they are not formally published, these documents reflect a tremendous amount of unique expertise, knowledge, and experience.

The ***Working Paper Series*** was created in order to preserve the information contained in these documents and to promote the sharing of valuable work experience and knowledge. However, these documents were prepared under different formats and did not undergo vigorous NCES publication review and editing prior to their inclusion in the series. Consequently, we encourage users of the series to consult the individual authors for citations.

To receive information about submitting manuscripts or obtaining copies of the series, please contact Ruth R. Harris at (202) 219-1831 or U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics, 555 New Jersey Ave., N.W., Room 400, Washington, D.C. 20208-5654.

Susan Ahmed
Chief Mathematical Statistician
Statistical Standards and Services Group

Samuel S. Peng
Director
Methodology, Training, and Customer Service Program

Telephone Coverage Bias and Recorded Interviews in the 1993 National Household Education Survey (NHES:93)

Prepared by:

J. Michael Brick
Ellen Tubbs
Mary A. Collins
Mary Jo Nolin
David Cantor
Kerry Levin
Yuki Carnes

Westat, Inc.

Prepared for:

U.S. Department of Education
Office of Educational Research and Development
National Center for Education Statistics

February 1997

Table of Contents

Section		Page
Foreword		iii
1.	**Overview of the National Household Education Survey**	1-1
	NHES:93 Design	1-2
2.	**Telephone Coverage Bias in the NHES:93**	2-1
	Telephone Coverage and Bias	2-1
	Estimated Differences Between Telephone and Nontelephone Households	2-3
	Statistical Adjustments of the Estimates	2-4
	Estimates of Coverage Bias	2-6
	Conclusions	2-8
	References	2-9
3.	**An Assessment of Data Quality from Recorded Interviews**	3-1
	Overview	3-1
	Background	3-1
	Method	3-3
	Findings	3-9
	Implications	3-17
	References	3-18

Appendices

Appendix A:	Recorded Interview Coding Forms	A-1
Appendix B:	Frequency of Rating for School Readiness Questionnaire (SR)	B-1
Appendix C:	Frequency of Rating for School Safety and Discipline Parent Questionnaire (SS&D-P)	C-1
Appendix D:	Frequency of Rating for School Safety and Discipline Youth Questionnaire (SS&D-Y)	D-1

List of Tables

2-1.	Estimated percentage of 3- to 7-year-olds in telephone and nontelephone households who have specific characteristics	2-10
2-2.	Relative raking adjustment factors for NHES:93 School Readiness component, by race/ethnicity and family income	2-11

TABLE OF CONTENTS--Continued

2-3. Estimated percentage of 3- to 7-year-olds in all households who have specific characteristics, adjusted estimates based on raking only children in telephone households, and the bias of the estimates before and after adjustment 2-12

2-4. Estimated percentage of 3- to 7-year-olds in all households who have specific characteristics, adjusted estimates based on raking only children in telephone households, and the bias of the adjusted estimates, by race/ethnicity 2-13

2-5. Estimated percentage of 3- to 5-year-olds in telephone and nontelephone households who engaged in specific activities with family members 2-16

2-6. Relative raking adjustment factors for NHES:91 Early Childhood Education component, by race/ethnicity and family income 2-17

2-7. Estimated percentage of 3- to 5-year-olds in all households who engaged in specific activities with family members and adjusted estimate based on raking only 3- to 5-year-olds in telephone households . . 2-18

2-8. Estimated percentage of 3- to 5-year-olds in all households who engaged in specific activities with family members and adjusted estimate based on raking only 3- to 5-year-olds in telephone households, by race/ethnicity . . 2-19

3-1. Overall level of agreement (interviewer and respondent) of ratings 3-7

3-2. Level of agreement of ratings for interviewer behavior 3-7

3-3. Level of agreement of ratings for respondent behavior 3-7

3-4. Number of exact/minor codes by rater and form 3-8

3-5. Overall level of agreement of ratings after collapsing "minor" and "exact" codes 3-8

3-6. Level of agreement of ratings for interviewer behavior after collapsing "minor" and "exact" codes 3-8

3-7. Total number of ratings per rating category 3-9

3-8. Total number of codes given by form 3-10

3-9. Frequency of rating on introductions 3-12

List of Figures

2-1. Telephone coverage of adults from 1988 to 1992 2-2

2-2. Telephone coverage of adults in 1992 by race/ethnicity 2-2

List of Exhibits

3-1. Behavior coding indicator definitions 3-4

9

1. Overview of the National Household Education Survey

The National Household Education Survey (NHES) is a data collection system of the National Center for Education Statistics (NCES), which has as its legislative mission the collection and publication of data on the condition of education in the Nation. The NHES is specifically designed to support this mission by providing information on those educational issues that are best addressed by contacting households rather than schools or other educational institutions. The NHES provides descriptive data on the educational activities of the U.S. population and offers policymakers, researchers, and educators a variety of statistics on the condition of education in the United States.

The NHES is a telephone survey of the noninstitutionalized civilian population of the U.S. Households are selected for the survey using random digit dialing (RDD) methods, and data are collected using computer-assisted telephone interviewing (CATI) procedures. About 45,000 to 64,000 households are screened for each administration, and individuals within households who meet predetermined criteria are sampled for more detailed or extended interviews. The data are weighted to permit estimates of the entire population. The NHES survey for a given year typically consists of a Screener, which collects household composition and demographic data, and extended interviews on two substantive components addressing education-related topics. In order to assess data item reliability and inform future NHES surveys, each administration also includes a subsample of respondents for a reinterview.

The primary purpose of the NHES is to conduct repeated measurements of the same phenomena at different points in time. Throughout its history, the NHES has collected data in ways that permit estimates to be tracked across time. This includes repeating topical components on a rotating basis in order to provide comparative data across survey years. In addition, each administration of the NHES has benefited from experiences with previous cycles, resulting in enhancements to the survey procedures and content. Thus, while the survey affords the opportunity for tracking phenomena across time, it is also dynamic in addressing new issues and including conceptual and methodological refinements.

A new design feature of the NHES program to be implemented in the NHES:96 is the collection of demographic and educational information on members of all screened households, rather than just those households potentially eligible for a topical component. In addition, this expanded screening feature will include a brief set of questions on an issue of interest to education program administrators or policymakers. The total Screener sample size was sufficient to produce state estimates of household characteristics for the NHES:96.

The NHES has been conducted in 1991, 1993, 1995, and 1996. Topics addressed by the NHES:91 were early childhood education and adult education. The NHES:93 collected information about school readiness and school safety and discipline. The 1991 components were repeated for the NHES:95, addressing early childhood program participation and adult education. Both components underwent substantial redesign to incorporate new issues and develop new measurement approaches. In the NHES:96, the topical components were parent/family involvement in education and civic involvement. The NHES:96 expanded screening feature included a set of questions on public library use.

In addition to its topical components, the NHES system has also included a number of methodological investigations. These have resulted in technical reports and working papers covering diverse topics such as telephone undercoverage bias, proxy reporting, and sampling methods. This

series of technical reports and working papers provides valuable information on ways of improving the NHES and other surveys.

This working paper addresses selected data quality activities implemented in the NHES:93. Readers interested in other aspects of the NHES:93 may wish to review the user's manuals noted above, as well as other working papers. The NHES:93 working papers include *Design, Data Collection, Monitoring, Interview Administration Time, and Data Editing in the 1993 National Household Education Survey* (Brick et al. forthcoming), *Unit and Item Response, Weighting, and Imputation Procedures in the 1993 National Household Education Survey* (Brick et al. forthcoming), and *Comparison of Estimates from the 1993 National Household Education Survey* (Collins et al. forthcoming). In addition, a forthcoming technical report, *Reinterviews in the 1993 National Household Education Survey* (Brick et al. forthcoming), presents results of a reinterview test conducted with NHES:93 respondents.

NHES:93 Design

The 1993 National Household Education Survey (NHES:93) addressed readiness for school and safety and discipline in school. These topics are related to Goal 1 and Goal 6, two of the National Education Goals. Specifically, Goal 1 states that "By the year 2000, all children in America will start school ready to learn." Goal 6 states that "By the year 2000, every school in America will be free of drugs and violence and will offer a safe, disciplined environment conducive to learning."

The School Readiness (SR) component covered experience in early childhood programs, the child's accomplishments and difficulties in several developmental domains, school adjustment and related problems, delayed kindergarten entry, and early primary school experiences, including repeating grades, the child's general health and nutritional status, home activities, and family characteristics such as stability and economic risk factors. Altogether, 10,888 children aged 3 through 7 or in 2nd grade or below were sampled. Interviews were conducted with 4,423 parents of preschool children, 2,126 parents of kindergartners, 4,277 parents of primary school children, and 62 parents of home school children. For further information on the content of the SR component, see the School Readiness Data File User's Manual (Brick et al. 1994).

The School Safety and Discipline component (SS&D) focused on four areas: school environment, school safety, school discipline policy, and alcohol/other drug use and education. The SS&D interview gathered general perceptions of the school learning environment from both parents and students. Parents of 12,680 children in 3rd through 12th grades were interviewed, as were 6,504 students in 6th through 12th grades. For further information on the content of the SS&D component, see the School Safety and Discipline Data File User's Manual (Brick et al. 1994).

The NHES:93 was developed to provide reliable estimates for each of the two different components described above. The inclusion of two survey components made the overall survey more cost effective, thus allowing for larger sample sizes and more precise estimates. This strategy was key to the NHES design. By including more than one topic within the framework of a single survey, the cost of screening household to find those eligible for the study could be partitioned over the component surveys.

It was possible that the same household member could be selected to respond to more than one interview and/or that more than one household member could be sampled. For the SR interview, if there were one or two eligible children in the household, interviews were conducted for those children. If the household included more than two eligible children, two children were randomly sampled from

that household. For the SS&D interview, if a household had one eligible youth, that youth was selected with a probability that depended on his/her grade (students in grades 3 through 5 were selected with a lower probability than those in grades 6 through 12). If a household had two or more eligible youths, the sampling depended upon the number of youths in the household in each of the two grade categories. A maximum of two youths was selected from any household for the SS&D component, one from the lower grades and one from the upper grades.

Even though sampling methods reduced the number of interviews per household, the length of the interview was considered to be a critical factor in obtaining high response rates and reliable estimates. Therefore, the number of items included in the NHES:93 was limited in order to help improve response rates and reduce the demands made on survey respondents.

Because of the above requirements, complex sampling techniques, and the need for quick and accurate administration, the NHES:93 was conducted using computer assisted telephone interviewing (CATI) technology. Some of the advantages of CATI for the NHES:93 included improved project administration, online sampling and eligibility checks, scheduling of interviews according to a priority scheme to improve response rates, managing data quality by controlling skip patterns and checking responses online for range and consistency, and an online "help" function to answer interviewers' questions.

Three different interview instruments were used in the NHES:93. These instruments were the Screener, the SR interview, and the SS&D interview. Items within each of the three instruments were programmed so that the appropriate items appeared on the interviewer's computer screen corresponding to the respondent's answer to previous queries. These instruments are discussed in detail in the School Readiness Data File User's Manual and the School Safety and Discipline Data File User's Manual.

2. Telephone Coverage Bias in the NHES:93

This section addresses issues associated with the bias that might arise in estimates from the 1993 National Household Education Survey (NHES:93) because only households with telephones were sampled. Data from the 1992 October supplement to the Current Population Survey (CPS) are used to evaluate the size of the bias. The focus of this section is on the potential for bias in statistics for 3- to 7-year-olds corresponding to the School Readiness (SR) component population in the NHES:93. Estimates of coverage bias for the School Safety & Discipline (SS&D) component population are not presented. Because students had to be enrolled in order to be eligible for the survey, comparisons of enrollment status for this population are not useful. In addition, other measures of interest, such as victimization at school, were not available from sources that had telephone coverage information available.

This analysis continues research on telephone coverage bias in estimates from the NHES that began with the 1989 Field Test (Brick, Burke, and West 1992). Other research was conducted using the data from the NHES:91 (Brick 1992). The procedures used in this analysis are consistent with the methods used to estimate the coverage bias in estimates of characteristics of those studies. Tables from the NHES:91 that were based on data from the 1990 October supplement to the CPS are provided at the end of Section 2.

Telephone Coverage and Bias

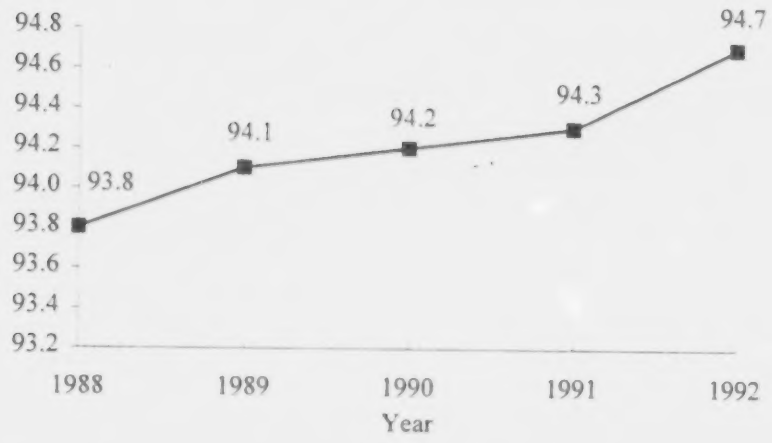
The NHES:93 was a random-digit-dial telephone survey and thus included only persons who lived in households with telephones. Approximately 6 percent of all persons live in households without telephones according to data from the March 1992 CPS. The Bureau of the Census used data from the CPS to estimate the trend in telephone coverage of adults (persons 16 years and older). Figure 2-1 shows there has been a slight increase in the percentage of adults in telephone households from 1988 to 1992.

The percentage of adults in households with telephones varies somewhat by the characteristics of the populations being considered. Figure 2-2 shows telephone coverage by race/ethnicity. White adults have a coverage rate of approximately 96 percent, which is slightly above the 95 percent for all adults. Black and Hispanic adults have lower coverage rates.

The inference population for the NHES includes persons living in both telephone and nontelephone households. Since the survey only interviews persons in telephone households and yet makes inference to persons living in both telephone and nontelephone households, the question of bias in the estimates naturally arises.

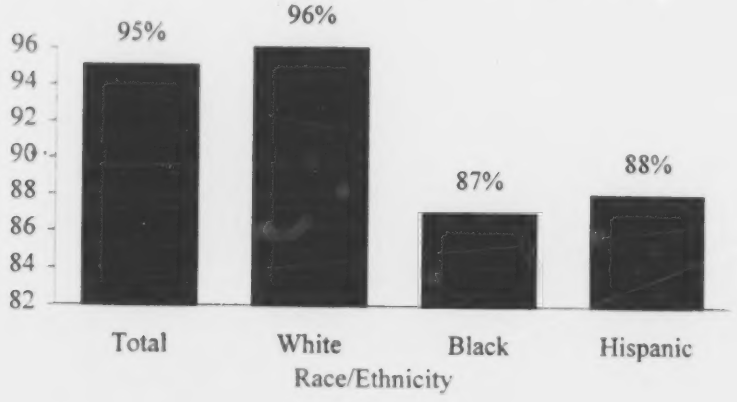
Bias has a specific technical definition in this context. Bias refers to the expected difference between the estimates from the survey and the actual population value. For example, if all telephone households were included in the survey and responded to the required interviews, the difference between the estimate from the survey and the actual population value (which includes the responses of persons living in nontelephone households) is the bias due to incomplete coverage. Since the NHES is based on a sample, the bias is defined as the expected or average value of this difference over all possible samples.

Figure 2-1.-- Telephone coverage of adults from 1988 to 1992



SOURCE: Special tabulations prepared by Bureau of Census from the 1988 through 1992 Current Population Surveys. Average coverage based on March, July, and November. Includes adults 16 years of age and older.

Figure 2-2.-- Telephone coverage of adults in 1992 by race/ethnicity



SOURCE: Special tabulations prepared by Bureau of Census from the 1992 Current Population Surveys. Average coverage based on March, July, and November. Includes adults 16 years of age and older.

Bias due to coverage problems can be substantial when two conditions are satisfied. First, the differences between the characteristics in the covered population and the uncovered population must be relatively large. For example, consider estimating the percentage of persons enrolled in a program. If the percentage enrolled is nearly identical in both the covered and uncovered population, then the bias for this estimate will be negligible. Second, the proportion of the population that is not covered by the survey must be large compared to the size of the estimates. If only 2 percent of the population is not covered, estimates of totals that comprise 20 or 30 percent of the population will not be greatly affected, even if the differences in the characteristics between the covered and uncovered populations are relatively large.

It is important to realize that the second condition requires the proportion uncovered must be large *relative* to the size of the estimates. If the estimate under consideration is for a domain or subgroup that is small, then even a small coverage problem can result in important biases in the estimates of the domain. For example, previous research in NHES showed that although only a small percentage of all 14- to 18-year-olds are school dropouts, there is considerable concentration of dropouts in nontelephone households. Consequently, there are substantial biases in estimates of dropouts although the biases are generally quite small for other statistics on 14- to 18-year-olds.

Mathematically, the bias can be written as

$$Bias(\hat{y}_t) = P_n\left\{E\left(\hat{y}_t - \hat{y}_n\right)\right\} \quad (1)$$

where $\hat{y}_t$ is the estimated characteristic based on the telephone households only, P_n is the proportion of nontelephone households, $\hat{y}_n$ is the estimated characteristic based on the nontelephone households, and E is the expectation operator for averaging over all possible samples.

This expression shows that the bias in the estimates increases as the proportion of households without telephones increases. Thus, the percentage of households without telephones, P_n, is an important component in assessing the size of the bias. The population of interest in the School Readiness (SR) component was 3- to 7-year-olds[1] who live in nontelephone households and is estimated at about 9.5 percent, based on the October 1992 CPS. This figure is higher than the 6 percent of all persons who live in nontelephone households, suggesting that bias could be a more significant problem for this domain than for estimates relating to the total population.

Estimated Differences Between Telephone and Nontelephone Households

The other component in the bias formula is the difference in estimates of telephone and nontelephone households. For many statistics there are major differences between telephone and nontelephone households. For example, there is a strong relationship between having a telephone and income and one's socioeconomic status and lifestyle. Thornberry and Massey (1988) assessed noncoverage bias of estimates of health characteristics and found many health and health-related characteristics of persons in nontelephone households were different from those of persons in telephone households. Brick, Burke, and West (1992) studied estimates for education statistics. They found smaller differences between telephone and nontelephone households for enrollment statistics than for other characteristics.

[1] This group is defined as children 3- to 7-years-old regardless of their grade and children 3 years and older who are not yet in the 3rd grade.

To examine the extent of the differences in the characteristics of persons in telephone and nontelephone households, the CPS, which is a household survey done both door to door and by telephone, was used as a data source. The October 1992 CPS contained two sets of items relevant to the NHES:93 SR component. One set of questions asked about the child having disabling conditions; the other asked about enrollment in school. The NHES:91 Early Childhood Education component on 3- to 5-year-old children, which was mentioned earlier, used the October 1990 CPS as the data source (Brick 1992). Tables from the NHES:91 appear in tables 2-5 through 2-8. The questions in that survey asked about the frequency of certain activities that a family member might have done with the child in the past week, month, or year.

Tabulations were made of the percentage distributions for the October 1992 CPS items for the population of children aged 3 to 7 years old (table 2-1). The percentage distributions for telephone and nontelephone households[2] are shown separately in the table.

The percentage distributions reveal some differences between the two estimates. Many of the differences are small. For example, the disability estimates are very similar for telephone households and nontelephone households. This may be because disabling conditions are not correlated with socioeconomic status. In contrast, enrollment in public versus private school and repeating a grade are more likely to be associated with socioeconomic status (McLaughlin et al., 1995; Collins and Brick, 1993). The differences between telephone and nontelephone household estimates are greater for these items and the bias is therefore likely to be larger for these characteristics.

Statistical Adjustments of the Estimates

In the NHES, the standard practice is to make statistical adjustments of survey estimates that compensate, to the extent possible, for design problems. This practice is especially important for surveys in which there is the potential for bias from undercoverage. The adjustments include ordinary nonresponse adjustments and the adjustments to known control totals. Adjustments to control totals are typically performed using poststratification or raking.

One of the goals of adjusting to control totals is to make the estimates consistent with known totals, but often a more important goal is to reduce the impact of imperfections in the design and conduct of the study on the estimates. In telephone surveys, these adjustments are designed to partially correct for undercoverage bias.

For the NHES:93, three dimensions of raking were used. The first dimension employed variables that indicated the Census region in which the person lived and whether or not the home was owned/other or rented. The second dimension was a combination of race/ethnicity and family income. The third dimension was age and grade. Based on these dimensions, the sample weights were raked to be consistent with the marginal control totals from the October 1992 CPS.

When sample weights are poststratified, a poststratified adjustment factor can be defined as the ratio of the poststratum control count for a cell and the sum of the weights of all the cases in that cell. The final, poststratified weight is the sampling weight multiplied by the adjustment factor for a cell.

[2]The classification of a household by telephone status was based on the response to the item, "Is there a telephone in this house/apartment?" This question was asked in the July and November CPS and Census Bureau staff inserted the reported value on the October file for this analysis.

Raking adjustments can be defined in a similar way by thinking of raking as a multidimensional form of poststratification. Because more than one dimension is involved in raking, the adjustment of the weights is iterated over each of the dimensions until the sum of the adjusted weights equals the marginal control counts for all the raking dimensions, within specified tolerances. The raking adjustment factor can be defined as the ratio of the sum of the adjusted weights in a cell divided by the sum of the weights in that cell prior to adjustment.

The coverage bias in the estimates is the residual bias that is present after the weight adjustments have been made. To evaluate the effectiveness of these adjustments for reducing the bias from coverage, relative raking adjustment factors from the NHES:93 SR component were computed. Relative adjustment factors were created by dividing the average raking factor for a specific cell in a raking dimension by the average factor across all cases.

The formal definition of the relative raking adjustment factor requires introducing some terminology. The raking factor for person i in cell c is denoted as $A_{i,c}$, where $c = \{j \otimes k \otimes l\}$ and j, k, and l refer to the three raking dimensions used in the NHES:93. Further, the set $c_{j'} = \{c: j = j'\}$ is defined as the cells where the first dimension of the raking variables is always j'. The sets for the other dimensions are c_k and c_l.

Now, the average raking factor across all cases can be written as:

$$\bar{A} = \frac{\sum_{i \in c} A_{i,c} w_i}{\sum_{i \in c} w_i}, \qquad (2)$$

where $A_{i,c}$ is the raking factor for person i in cell c and w_i is the weight for person i prior to raking. The average raking factor for a specific value (say j') on dimension j is given by:

$$\bar{A}_{j'} = \frac{\sum_{i \in c_{j'}} A_{i,c} w_i}{\sum_{i \in c_j} w_i}. \qquad (3)$$

Finally, the relative raking adjustment factor is the ratio of these two quantities:

$$RA_{j'} = \frac{\bar{A}_{j'}}{\bar{A}}. \qquad (4)$$

For example, the average raking adjustment factor for all 3- to 7-year-olds who were Hispanic and lived in a household with a family income of less than $10,000 per year was computed. This average adjustment factor was divided by the average adjustment factor for all 3- to 7-year-olds to create the relative adjustment factor for this subgroup. The relative factors for nine categories of race/ethnicity and family income are shown in table 2-2.

The relative raking adjustment factors are greater than unity (indicating that 3- to 7-year-old children in this group are adjusted upward relative to the average across all groups) for all the lowest income groups, regardless of race/ethnicity. This, of course, adjusts for the lower telephone penetration

in the low-income group. The relative adjustment for blacks in households with incomes of less than $10,000 is larger than for any other group, which is consistent with the low telephone coverage for blacks as shown in figure 2-2. The adjustments for families with incomes of $25,000 or more are the smallest of the groups summarized, reflecting their relatively high telephone coverage. The relative adjustment factors are generally lower than the comparable factors from the NHES:91 study shown in table 2-6. The factors for Hispanics, in particular, are lower for this survey than the NHES:91. No specific explanation is available for this result, however, some of the differences may be due to the fact that the 1992 CPS estimates used for developing the raking factors for NHES:93 were based on 1990 Census data, while the 1990 CPS estimates used for developing the raking factors for NHES:91 were not yet adjusted for the 1990 Census, but for the 1980 Census data.

The nine categories are used to illustrate the impact of the adjustments on the estimates. These factors do not include all the variability in the adjustments used in weighting the data for NHES:93. For example, the NHES:93 adjustments differed by age, but the factors in the table are collapsed across all ages. Factors across other categories could also have been selected. The income variable was considered important due to the high correlation between family income and telephone status. In the actual NHES:93 estimation process, the full set of adjustments was used rather than the adjustments shown in table 2-2.

Estimates of Coverage Bias

The relative adjustment factors presented above were used to simulate the impact of the raking adjustment on the estimated percentage distributions in the NHES:93 SR component. The factors were applied to October 1992 CPS estimates of characteristics of 3- to 7-year-olds living in telephone households to produce estimated percentage distributions for all 3- to 7-year-olds. In this way, the telephone households from the October 1992 CPS are used to simulate the impact of the adjustments on the estimates in a telephone survey (table 2-3). For comparison purposes, the estimates based on all CPS households and the biases associated with the estimates before and after adjustment are also shown in this table. A negative bias indicates that the sample estimate is smaller than the estimate based on all households.

The comparison of the estimates from persons living in all households to the adjusted estimates based on those only in telephone households shows that the adjustments decreased the bias in some cases, slightly increased the bias in others, and did not affect the bias in other estimates. In almost all circumstances, the estimated biases are not statistically significant from zero.

Even if the adjustments did not correct for the differential undercoverage bias, the estimates based only on respondents in telephone households might not be as misleading as the data in table 2-1 indicate. When the differences between estimates from telephone and nontelephone households ($\hat{y}_t - \hat{y}_n$) are not very large and the proportion of nontelephone households (P_n) is small, the biases are not large. The unadjusted estimates from telephone households are slightly more biased than those based on the raking adjustment, but they are not wildly different from the actual estimates as shown in table 2-3. The reason is simple: Less than 10 percent of 3- to 7-year-olds live in nontelephone households, and this limits the bias that can be incurred from this source.

The bias for subgroups may be affected differently than that for aggregates across all groups. The main reason is that the proportion of households without telephones is larger for some subgroups than the proportion for the population as a whole. For example, while only about 10 percent of all 3- to 7-year-

olds are in nontelephone households, for Hispanics, non-Hispanic blacks, and non-Hispanic nonblacks the percents of 3- to 7-year-olds in nontelephone households are 17, 23, and 5, respectively. Thus, the potential for bias is much greater for estimates of Hispanics and blacks. It should also be noted that the difference in coverage rates by race/ethnicity can create biases in estimates of the total population even if the characteristics of telephone and nontelephone households are identical. This occurs because the race/ethnicity mix of a telephone sample may differ from the distribution of the total population, and this can create biases for characteristics that vary among the three major race/ethnicity groups.

To examine the potential for bias in these subgroups more closely, table 2-4 shows the estimates for all households, for adjusted telephone households, and the associated biases by race/ethnicity of the child. The estimated differences by race/ethnicity are larger than the aggregates across the entire population. These are not negligible, but they are still less than what would have been observed if no adjustments for undercoverage had been made.

Two reasons account for the apparent larger biases for the subgroup estimates. First, the relative adjustment factors used in this simulation include cells for race/ethnicity. The only adjustment factor operating within the race/ethnicity cells is associated with family income. Therefore, the bias adjustments are smaller within these subgroups, and the use of the relative adjustment factors is likely to depress the bias reducing properties for these subgroups. The relative adjustment factors are not as variable within a race/ethnicity cell as they are over all cells, and the ability to mitigate the biases within these cells is limited. In the actual application of the raking adjustments in NHES:93, the full adjustment factors were used and a greater opportunity to reduce biases exists.

The second reason for the apparently larger differences relates to the precision of the estimated differences. The difference between the estimate for the adjusted telephone households and all households is the estimated bias. The estimated bias has a relatively large sampling error.[3] It is difficult to assess the estimated differences or biases for subgroups, since the sampling errors on these statistics are so large that none of them is significantly different from zero.

These two points relate back to the main reasons for adjusting the estimates. The adjustments are made with the hope that persons within the adjustment cells are homogeneous with respect to the characteristics being estimated. When this is true, the adjustments will tend to decrease the bias. Within the adjustment cells, undercoverage biases may persist if persons in telephone and nontelephone households have substantial differences in characteristics. Unfortunately, the databases available do not have sample sizes large enough to examine these differences very well.

---

[3]Technically, the estimated bias is the difference between the estimated total from the telephone households with a revised weight and the estimated total from the nontelephone households. The revised weight is the differential sampling weight for the case multiplied by a complex factor that can be written as: $\left(\bar{A}^{\bullet} \times (RA_i - \bar{A}^{\bullet\bullet})\right)$, where $\bar{A}^{\bullet}$ is the average adjustment factor to make the sum of the telephone household weights equal to the national total and $\bar{A}^{\bullet\bullet}$ is the average adjustment factor to make the sum of the weights for all sampled households equal to the national total. This estimate could be negative if the raking adjustment increases the bias for a particular characteristic beyond what would result if no adjustments were made to the weights.
Since the estimated bias is the difference of two independent components, its variance is the sum of the variances for the components. The variance for the estimated total for the nontelephone households is relatively large, especially for subgroups. There were only 1,011 3- to 7-year-olds in nontelephone households in the October 1992 CPS with 207 Hispanics, 336 non-Hispanic blacks, and 468 non-Hispanic nonblacks. Estimates based on samples of this size from the CPS generally have sampling errors between 2 and 30 percent of the size of the estimates, depending on the subgroups. Even without evaluating the variance of the second term, it is clear that the sampling error of the estimated bias is large.

For the statistics computed for the NHES:91 Early Childhood Education component, the adjustments were very effective in reducing bias. The adjustments made to the estimates of telephone households virtually eliminated the coverage bias as shown in table 2-7. This result contrasts with the findings from the current research. The biases for race/ethnicity subgroups were larger than those across the total population in the NHES:91 (table 2-8), paralleling the results from the current study.

Conclusions

The analysis of undercoverage bias shows that the coverage bias for statistics on 3- to 7-year-olds in the NHES:93 is not large. This finding is true even though large differences are reported for children living in telephone and nontelephone households. The estimates were adjusted using variables correlated with the presence of a telephone in the household. For some estimates, the adjustment reduced the bias from undercoverage. For others, the adjustment did not affect the bias or slightly increased the bias.

In large sample surveys like the NHES:93, nonsampling error is often the source of much larger errors than arise from sampling. Coverage is an important source of nonsampling error, and it is important to review the potential of bias from this source. This analysis reveals that for many types of aggregates the residual bias associated with undercoverage is not a major problem.

As noted above, the undercoverage bias for smaller subgroups could be more problematic and require additional research. The undercoverage bias for most subgroups is not likely to be a major problem after adjustment. However, the potential for bias is greatest for those subgroups in which a large proportion live in nontelephone households. These findings suggest that additional analysis of the undercoverage for the SR component is not necessary, unless some specific subgroup that is likely to have much poorer than average coverage is the subject of a detailed analysis.

No general rule adequately addresses all the subgroups that may be analyzed. When dealing with a small subgroup that is likely to be differentially undercovered, data users should consider the possible impact of different sources of error. Both sampling errors and nonsampling errors from coverage bias are likely to be relatively large for such rare groups.

Despite the complications for rare subgroups that have low telephone coverage rates, the usefulness of the statistical adjustments and the low residual undercoverage bias for most statistics indicate that telephone data collection is a very cost-effective survey procedure for the populations studied in NHES:93. When evaluating the residual bias in the rarer subgroups, it should be recognized that the sample size for an in-person interview survey at the same cost would be much smaller than is possible in a telephone survey, and estimates for these subgroups would be subject to very large sampling errors. For most items, the telephone survey approach provides more information for estimates of the subgroups than would be possible for an in-person interview at the same cost.

References

Brick, J.M. (1992). Undercoverage Bias in Estimates of Characteristics of 3- to 7-year-olds, Appendix H, *National Household Education Survey Methodology Report*, (Prepared under contract for the National Center for Education Statistics). Rockville, MD: Westat, Inc.

Brick, J.M., Burke, J., and West, J. (1992). *National Household Education Survey: Telephone Undercoverage Bias of 14- to 21-year-olds and 3- to 5-year-olds.* NCES Publication No. 92-101. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.

Brick, J.M., Collins, A.M., Nolin, M.J., Ha, P., Levinsohn, M., and Chandler, K. (1994). *National Household Education Survey of 1993: School Readiness Data File User's Manual.* NCES Publication No. 94-193. Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Brick, J.M., Collins, A.M., Nolin, M.J., Ha, P., Levinsohn, M., and Chandler, K. (1994). *National Household Education Survey of 1993: School Safety and Discipline Data File User's Manual.* NCES Publication No. 94-218. Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Brick, J.M., Collins, M.A., Nolin, M.J., Davies, E., and Feibus, M.L. (forthcoming). *Design, Data Collection, Monitoring, Interview Administration Time, and Data Editing in the 1993 National Household Education Survey*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.

Brick, J.M., Rizzo, L., and Wernimont, J. (forthcoming). *Reinterviews in the 1993 National Household Education Survey.* Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.

Brick, J.M., Tubbs, E., Collins, M.A., and Nolin, M.J. (forthcoming). *Unit and Item Response Rates, Weighting, and Imputation Procedures in the 1993 National Household Education Survey.* Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.

Collins, M.A. and Brick, J.M. (1993) Parent reports on children's academic progress and school adjustment in the National Household Education Survey. 1993 Proceedings of the Social Statistics Section, American Statistical Association, January, Fort Lauderdale, FL.

Collins, M.A., Nolin, M.J., Branden, L. (forthcoming). *Comparison of estimates from the 1993 National Household Education Survey.* Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.

McLaughlin, D., O'Donnell, C., Ries, L., and Broughman, S. (1995). *Private Schools in the United States: A Statistical Profile, 1990-91*. NCES Publication No. 95-330. U.S. Department of Education, Office of Educational Research and Opportunity, National Center for Education Statistics.

Thornberry, O.T. and Massey, J.T. (1988). Trends in United States Telephone Coverage Across Time and Subgroups, *Telephone Survey Methodology* (pp. 25-50). New York: John Wiley and Sons.

Table 2-1.-- Estimated percentage of 3- to 7-year-olds in telephone and nontelephone households who have specific characteristics

Child characteristic	Children in telephone households	Children in nontelephone households
Attends or enrolled in regular school[1]	76.0%	67.8%
Enrolled in public school[2]	76.9	92.3
Enrolled in grade:[2]		
Nursery school--full time	6.1	4.3
Nursery school--part time	13.8	8.7
Kindergarten--full time	11.5	15.2
Kindergarten--part time	15.4	15.0
1st grade	25.3	30.0
2nd grade	26.5	26.4
3rd grade	1.3	0.5
Repeated a grade[2]	2.0	6.9
Had disabling condition:[1]		
Learning disability	2.0	2.0
Mental retardation	0.8	0.4
Speech impairment	3.2	3.6
Serious emotional disturbance	0.7	0.7
Deafness	0.5	0.4
Other hearing impairment	1.3	1.4
Blindness	0.3	0.3
Other vision impairment	0.9	1.2
Orthopedic impairment	0.9	0.8
Other health imp. lasting 6 months or more	1.6	1.6
None of the above	89.2	87.3

[1] Estimates are based on all children (10,997 in all and 1,011 in nontelephone households).
[2] Estimates are based on enrolled children (8,353 in all and 695 in nontelephone households).
NOTE: Due to rounding, details may not add to totals.
SOURCE: Special tabulations from the October 1992 Current Population Survey.

Table 2-2.-- Relative raking adjustment factors for NHES:93 School Readiness component, by race/ethnicity and family income

Race/ethnicity	Family income	Relative factor
Hispanic	Less than $10,000	1.30
Hispanic	$10,000 to $24,999	0.90
Hispanic	$25,000 or more	0.49
Black, non-Hispanic	Less than $10,000	1.97
Black, non-Hispanic	$10,000 to $24,999	1.57
Black, non-Hispanic	$25,000 or more	0.74
Non-Hispanic, nonblack	Less than $10,000	1.35
Non-Hispanic, nonblack	$10,000 to $24,999	1.12
Non-Hispanic, nonblack	$25,000 or more	0.74

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), spring 1993.

Table 2-3.-- Estimated percentage of 3- to 7-year-olds in all households who have specific characteristics, adjusted estimates based on raking only children in telephone households, and the bias of the estimates before and after adjustment

Child Characteristic	Children in all households	Bias in telephone household estimates	Adjusted telephone households	Bias in adjusted telephone household estimates
Attends or is enrolled in regular school[1]	75.0%	1.0%	75.4%	0.4%
Enrolled in public school[2]	78.4	-1.5	80.2	1.8
Enrolled in grade[2]				
Nursery school--full time	6.0	0.1	6.4	0.4
Nursery school--part time	13.2	0.5	12.9	-0.3
Kindergarten--full time	12.0	-0.5	12.0	0.0
Kindergarten--part time	15.4	0.0	15.2	-0.2
1st grade	25.8	-0.4	25.9	0.1
2nd grade	26.3	0.2	26.4	0.2
3rd grade	1.3	0.0	1.2	-0.1
Repeated a grade[2]	2.7	-0.5	2.5	-0.1
Had disabling condition[1]				
Learning disability	2.1	-0.1	2.3	0.3
Mental retardation	0.7	0.1	0.9	0.2
Speech impairment	3.3	-0.1	3.5	0.2
Serious emotional disturbance	0.7	0.0	0.8	0.1
Deafness	0.5	0.0	0.5	0.0
Other hearing impairment	1.3	0.0	1.5	0.1
Blindness	0.3	0.0	0.4	0.0
Other vision impairment	1.0	-0.1	1.0	0.0
Orthopedic impairment	0.9	0.0	1.0	0.1
Other health imp. lasting 6 months or more	1.6	0.0	1.8	0.2
None of the above	88.8	0.4	88.8	0.0

[1] Estimates are based on all children (10,997 in all and 9,986 in telephone households).
[2] Estimates are based on enrolled children (8,353 in all and 7,658 in telephone households).
NOTE: Due to rounding, details may not add to totals. A negative bias indicates that the sample estimate is smaller than the estimate based on all households.
SOURCE: Special tabulations from the October 1992 Current Population Survey.

Table 2-4.-- Estimated percentage of 3- to 7-year-olds in all households who have specific characteristics, adjusted estimates based on raking only children in telephone households, and the bias of the adjusted estimates, by race/ethnicity

Child characteristic	Children in all households	Adjusted telephone households	Bias in adjusted telephone household estimates
Attends or is enrolled in regular school[1]			
All	75.0%	75.4%	0.4%
Hispanic	69.8	71.6	1.8
Black, non-Hispanic	74.5	75.8	1.3
Nonblack, non-Hispanic	76.0	75.8	-0.2
Enrolled in public school[2]			
All	78.4	80.2	1.8
Hispanic	89.7	91.8	2.1
Black, non-Hispanic	89.3	91.6	2.3
Nonblack, non-Hispanic	74.4	75.5	1.1
Enrolled in grade[2]			
All			
Nursery school--full time	6.0	6.4	0.4
Nursery school--part time	13.2	12.9	-0.3
Kindergarten--full time	12.0	12.0	0.0
Kindergarten--part time	15.4	15.2	-0.2
1st grade	25.8	25.9	0.1
2nd grade	26.3	26.4	0.2
3rd grade	1.3	1.2	-0.1
Hispanic			
Nursery school--full time	3.7	3.5	-0.2
Nursery school--part time	7.9	8.5	0.5
Kindergarten--full time	13.0	12.1	-0.8
Kindergarten--part time	18.3	19.8	1.5
1st grade	28.5	27.3	-1.2
2nd grade	26.5	26.6	0.0
3rd grade	2.0	2.3	0.3
Black, non-Hispanic			
Nursery school--full time	10.5	10.5	0.0
Nursery school--part time	5.9	6.2	0.3
Kindergarten--full time	19.5	18.7	-0.8
Kindergarten--part time	10.3	9.6	-0.7
1st grade	25.3	26.6	1.3
2nd grade	27.0	27.4	0.4
3rd grade	1.6	1.1	-0.5

Table 2-4.-- Estimated percentage of 3- to 7-year-olds in all households who have specific characteristics, adjusted estimates based on raking only children in telephone households, and the bias of the adjusted estimates, by race/ethnicity--Continued

Child characteristic	Children in all households	Adjusted telephone households	Bias in adjusted telephone household estimates
Enrolled in grade			
Nonblack, non-Hispanic			
Nursery school--full time	5.4%	5.6%	0.2%
Nursery school--part time	15.6	15.4	-0.2
Kindergarten--full time	10.2	10.1	-0.1
Kindergarten--part time	16.1	16.2	0.1
1st grade	25.5	25.5	0.1
2nd grade	26.1	26.2	0.1
3rd grade	1.2	1.1	-0.1
Repeated a grade[2]			
All	2.7	2.5	-0.1
Hispanic	2.6	2.1	-0.5
Black, non-Hispanic	4.5	4.3	-0.2
Nonblack, non-Hispanic	2.3	2.1	-0.2
Had disabling conditions[1]			
All			
Learning disability	2.1	2.3	0.2
Mental retardation	0.7	0.9	0.2
Speech impairment	3.3	3.5	0.2
Serious emotional disturbance	0.7	0.8	0.1
Deafness	0.5	0.5	0.0
Other hearing impairment	1.3	1.5	0.1
Blindness	0.3	0.4	0.0
Other vision impairment	1.0	1.0	0.0
Orthopedic impairment	0.9	1.0	0.1
Other health imp. lasting 6 months or more	1.6	1.8	0.2
None of the above	88.8	88.8	0.0

Table 2-4.-- Estimated percentage of 3- to 7-year-olds in all households who have specific characteristics, adjusted estimates based on raking only children in telephone households, and the bias of the adjusted estimates, by race/ethnicity--Continued

Child characteristic	Children in all households	Adjusted telephone households	Bias in adjusted telephone household estimates
Hispanic			
Learning disability	0.9%	1.0%	0.1%
Mental retardation	0.6	0.9	0.3
Speech impairment	1.3	1.1	-0.2
Serious emotional disturbance	0.2	0.3	0.1
Deafness	0.3	0.4	0.2
Other hearing impairment	0.2	0.3	0.1
Blindness	0.1	0.1	0.1
Other vision impairment	0.5	0.5	-0.1
Orthopedic impairment	0.4	0.8	0.3
Other health imp. lasting 6 months or more	1.2	1.5	0.3
None of the above	89.5	89.3	-0.1
Black, non-Hispanic			
Learning disability	2.5	3.4	1.0
Mental retardation	0.9	1.4	0.5
Speech impairment	3.4	5.0	1.6
Serious emotional disturbance	0.8	1.3	0.4
Deafness	0.4	0.5	0.1
Other hearing impairment	1.3	1.8	0.5
Blindness	0.5	0.5	0.1
Other vision impairment	1.3	1.4	0.1
Orthopedic impairment	1.1	1.0	0.0
Other health imp. lasting 6 months or more	1.8	2.4	0.6
None of the above	87.0	85.8	-1.2
Nonblack, non-Hispanic			
Learning disability	2.2	2.2	0.0
Mental retardation	0.7	0.8	0.1
Speech impairment	3.6	3.4	-0.1
Serious emotional disturbance	0.8	0.8	0.0
Deafness	0.5	0.5	0.0
Other hearing impairment	1.5	1.5	0.0
Blindness	0.4	0.3	0.0
Other vision impairment	1.0	1.0	0.0
Orthopedic impairment	1.0	1.0	0.0
Other health imp. lasting 6 months or more	1.7	1.7	0.0
None of the above	89.1	89.5	0.5

[1] Estimate is based on all children (10,997 in all and 9,986 in telephone households; for black children 1,528 in all and 1,192 in telephone households; for Hispanic children 1,118 in all and 911 in telephone households).

[2] Estimate is based on enrolled children (for all children 8,353 in all and 7,658 in telephone households; for Hispanic children 792 in all and 657 in telephone households).

SOURCE: Special tabulations from the 1992 Current Population Survey.

Table 2-5.-- Estimated percentage of 3- to 5-year-olds in telephone and nontelephone households who engaged in specific activities with family members

Activities of 3- to 5-year-olds with family members	Children in telephone households			Children in nontelephone households		
	Frequency			Frequency		
	None	1 or 2	3 or more	None	1 or 2	3 or more
Activity in the last week						
Read to	7.0%	23.6%	69.4%	21.4%	41.7%	36.9%
Taught letters, words, numbers	15.8	27.7	56.5	30.5	33.5	36.1
Taught songs or music	32.2	31.2	36.6	48.2	27.9	23.8
Did arts and crafts	35.3	32.4	32.3	56.3	26.9	16.8
Played games or sports	13.7	33.4	52.9	28.0	36.8	35.2
Watched educational TV	27.8	25.2	46.9	39.8	22.7	37.5
	Within the last			Within the last		
	Month	Year	No	Month	Year	No
Activity in the last month/year						
Visited a library	36.0%	23.3%	40.7%	14.0%	14.3%	71.6%
Gone to a movie	28.3	38.3	33.4	21.9	24.3	53.8
Gone to a play/concert/live show	11.3	27.7	61.1	7.1	8.5	84.3
Visited art gallery, etc.	13.1	33.8	53.1	7.4	10.1	82.5
Visited zoo/aquarium	17.0	51.3	31.6	8.3	27.2	64.5
Visited playground/park	75.1	18.1	6.8	66.0	18.6	15.4

NOTE: Due to rounding, details may not add to totals.
SOURCE: Special tabulations from the October 1990 Current Population Survey.

Table 2-6.-- Relative raking adjustment factors for NHES:91 Early Childhood Education component, by race/ethnicity and family income

Race/ethnicity	Family income	Relative factor
Hispanic	Less than $10,000	2.07
Hispanic	$10,000 to $24,999	1.18
Hispanic	$25,000 or more	0.87
Black, non-Hispanic	Less than $10,000	2.67
Black, non-Hispanic	$10,000 to $24,999	1.41
Black, non-Hispanic	$25,000 or more	1.13
Non-Hispanic, nonblack	Less than $10,000	1.45
Non-Hispanic, nonblack	$10,000 to $24,999	0.99
Non-Hispanic, nonblack	$25,000 or more	0.79

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), 1991.

Table 2-7.-- Estimated percentage of 3- to 5-year-olds in all households who engaged in specific activities with family members and adjusted estimate based on raking only 3- to 5-year-olds in telephone households

Activities of 3- to 5-year-olds with family members	Children in all households			Adjusted telephone households		
	Frequency			Frequency		
	None	1 or 2	3 or more	None	1 or 2	3 or more
Activity in the last week						
Read to	8.5%	25.5%	65.9%	8.9%	24.7%	66.4%
Taught letters, words, numbers	17.4	28.3	54.3	16.5	27.6	55.9
Taught songs or music	33.9	30.8	35.3	33.1	30.9	36.0
Did arts and crafts	37.6	31.8	30.6	38.4	30.9	30.7
Played games or sports	15.3	33.7	51.0	15.2	33.6	51.2
Watched educational TV	29.1	25.0	45.9	28.5	25.3	46.2
	Within the last			Within the last		
	Month	Year	No	Month	Year	No
Activity in the last month/year						
Visited a library	33.7%	22.3%	44.0%	33.6%	22.2%	44.2%
Gone to a movie	27.6	36.8	35.6	28.5	36.1	35.5
Gone to a play/concert/ live show	10.8	25.6	63.6	11.1	25.1	63.8
Visited art gallery, etc.	12.5	31.2	56.3	12.5	30.9	56.6
Visited zoo/aquarium	16.1	48.8	35.1	16.9	48.4	34.7
Visited playground/park	74.2	18.2	7.7	73.8	18.4	7.8

NOTE: Due to rounding, details may not add to totals.
SOURCE: Special tabulations from the October 1990 Current Population Survey.

Table 2-8.-- Estimated percentage of 3- to-5-year-olds in all households who engaged in specific activities with family members and adjusted estimate based on raking only 3- to 5-year-olds in telephone households, by race/ethnicity

Activities of 3- to 5-year-olds with family members	Children in all households			Adjusted telephone households		
	Frequency			Frequency		
	None	1 or 2	3 or more	None	1 or 2	3 or more
Read to by family member						
All	8.5%	25.5%	65.9%	8.9%	24.7%	66.4%
Hispanic	26.8	32.0	41.2	27.0	28.5	44.5
Black, non-Hispanic	14.4	35.1	50.5	12.5	31.8	55.6
Nonblack, non-Hispanic	4.5	22.6	72.9	4.4	21.9	73.7
	Within the last			Within the last		
	Month	Year	No	Month	Year	No
Visited a library						
All	33.7%	22.3%	44.0%	33.6%	22.2%	44.2%
Hispanic	20.9	16.9	62.1	23.0	17.6	59.4
Black, non-Hispanic	22.4	19.1	58.6	24.4	20.1	55.6
Nonblack, non-Hispanic	37.9	23.8	38.2	38.3	23.7	38.0

NOTE: Due to rounding, details may not add to totals.
SOURCE: Special tabulations from the October 1990 Current Population Survey.

3. An Assessment of Data Quality from Recorded Interviews

Overview

The purpose of this portion of the working paper is to report the results of an evaluation of some aspects of the quality of interviews conducted for the 1993 National Household Education Survey (NHES:93). The NHES:93 consisted of two components: the School Readiness (SR) component which was administered to parents of children 3 to 7 years old or in second grade or below; and the School Safety and Discipline (SS&D) component which was administered to parents of children in grades 3 through 12, and also administered to youth in grades 6 through 12.

The evaluation is based on a sample of SR and SS&D interviews that were tape recorded during the regular conduct of the NHES:93. In all, 45 SS&D interviews and 25 SR interviews were recorded and used in this assessment.

The evaluation was carried out by applying behavioral coding methods adapted from Oksenberg, et al. (1991) to the recorded interviews. Both respondent and interviewer behavior were evaluated, since both are indicators of the quality of the interview process. Some measures of the reliability of the coding of the behaviors were also included by having two coders assess the same interviews.

The findings indicate that there were relatively few instances in which the interviewer did not follow the prescribed procedures or the respondent did not provide a codeable response. The most frequent problem involved interviewers clarifying questions and respondents asking for clarification. Other problem areas are noted and potential reasons for these problems are suggested.

The next section provides some background on the concepts underlying behavioral coding and the value of this approach. The methods used in this study are explained in the following section. The results of the evaluation are then presented in the next sections, including the analysis of the quality of the coding. The last section discusses the implications of the findings for this study and future NHES data collection, along with some suggestions for further study.

Background

Structured questionnaires, such as the SS&D and SR, depend on the interviewer following strict rules of behavior. Questions are to be read exactly as worded. When probing or clarification is needed, the interviewer should follow a prescribed sequence of actions (e.g., repeat question, provide non-directive feedback). Following this protocol does not allow the interviewer and respondent to follow normal rules of conversation. Nonetheless, structure is needed to insure that all respondents are exposed to the same measurement process.[1] A well designed questionnaire will minimize the awkward nature of the interviewer-respondent interaction and insure that all respondents are exposed to the same set of questions. If the questionnaire is poorly constructed, respondents will frequently interrupt questions, interviewers may be forced to reword questions or provide extensive clarification. These deviations from prescribed protocols are considered indications of a poorly designed questionnaire. This, in turn, leads to measurement error.

[1]For a discussion of the advantages and disadvantages of structured interviews, see Suchman and Jordan (1990).

Based on this logic, Oksenberg, et al. (1991) developed behavior coding schemes to pre-test and evaluate structured questionnaires. These schemes provide systematic data on the behavior of interviewers and respondents to test whether interviewers are systematically deviating from protocols and whether respondents can provide data in the expected form without extensive, unstructured (i.e., not scripted), interactions with the interviewer. For interviewers, examples of these behaviors include whether the question is read exactly as written or changed in some way or needs clarification. For respondents, examples include whether the respondent provides a codeable response or asks for clarification. To the extent that questions are not read as worded, codeable responses are not provided, or clarification is needed, problems may exist with a particular sequence of questions or entire questionnaires.

This behavior coding scheme has been applied in a number of instances to evaluate questionnaires (Esposito et al. 1991; Burgess and Paton 1993). This method is useful for revealing a broad range of problems that would be directly reflected in interviewer or respondent behavior. The method is limited, however, in two important ways. First, it does not provide a reason for why a problem may exist. It only provides points in the questionnaire that seem to be leading to problems. Once a question with systematic problems is identified, further analysis is required to assess exactly why the question might be problematic (e.g., wording too complex, question is too long, question is out of context). Second, the method is dependent on the problem being manifested by interviewers or respondents. This, in many ways, is a minimal standard to assess data quality.[2] It is reasonable to expect that when interviewers do ask the question as worded and respondents do provide codeable responses, respondents may still be subject to a wide array of errors (e.g., does not fully understand the question, does not remember properly, intentionally conceals information). Despite these limitations, the behavior coding scheme used in this study does provide a quantifiable indication of how well the questionnaire facilitates the ability of the interviewers to follow intended procedures and the respondents to provide codeable responses.

This study complements two other evaluations of the NHES:93 interviews. The others are the report of the quality of interviewer performance based on coded monitoring activities (*Design, Data Collection Monitoring, Interview Administration Time and Data Editing in the 1993 National Household Education Survey*, Brick et al. forthcoming) and the report of the reinterview study (*Reinterviews in the 1993 National Household Education Survey*, Brick et al. 1996). The use of behavior coding attempts to assess the quality of the questionnaire by noting systematic problems associated with deviating from prescribed protocols. This contrasts with the evaluation of individual interviewer performance, which rates the overall quality of the individual interviewers used on the study. The analysis of the reinterview information will provide a measure of the reliability of the responses provided during the interview. To the extent that interviewer performance is of high quality and the questionnaire is designed properly, measures of reliability should be high. The item-specific reliabilities from this analysis can be used as one indication of the seriousness of item specific problems pointed out by the behavioral coding. For example, if the behavioral coding points to a particular question sequence as having a large number of clarifications required by the interviewers, the analysis of the reinterview data should indicate whether these problems are reflected in respondents providing different answers to the same item at different times during the interview.

[2]Validating survey responses is a long-standing problem associated with any study of this type. Short of finding an external measure of validity (e.g., school or police records), alternative methods of evaluating the questionnaire (e.g., cognitive interviewing) have similar problems associated with obtaining direct measures of measurement error.

Method

Taping the Interviews

During late February and early March, six interviewers in two of the telephone centers used for conducting the NHES:93 were trained to record a sample of extended interviews. The interviewers were trained to ask respondents for permission to tape record the interview for use in a special study. If the respondent did not feel comfortable with the recording, the interview was not recorded.

These tape recorded interviews were batched together for later evaluation. Some of the tapes were not of sufficient quality for use in this study. The inability to clearly understand the respondents on the recorded interviews was the primary reason for discarding some of the tapes from the analysis. In all, 70 interviews conducted by 6 interviewers were of sufficient quality to permit their use. However, even in some of these tapes it was difficult to understand the respondent in different parts of the interview.

Coding Approach

Exhibit 3-1 presents a listing of the codes used in this evaluation and their associated definitions. This scheme is adapted from Oksenberg, et al. (1991) by deleting and adding a small number of coding categories.

There are 5 codes relevant to interviewer behavior. These categories are:

1. Read the question exactly as worded;
2. Read the question with a minor wording change;
3. Read the question with a major wording change;
4. Clarified the question for the respondent; and
5. Displayed some affect.

The differences between the first 3 codes is the degree to which the interviewer departed from the script. Minor changes include such things as insertion or omission of particular words that the coder judges as not altering the meaning of the question. Major changes are those changes that are judged to alter the meaning of the question, such as not reading whole parts of the question. The affect category was inserted to try to pick up whether particular questions, especially ones that cover sensitive material, were difficult for the interviewer to administer in a neutral manner. This code is not part of the Oksenberg, et al. (1991) scheme.

Respondent behavior was coded using 6 categories. These categories are:

1. Gave a "correct" response;
2. Interrupted the interviewer before completing the question;
3. Clarified the question;
4. Qualified the answer with respect to accuracy;
5. Did not provide an adequate answer; and
6. Expressed sensitivity to the question.

Exhibit 3-1.--Behavior coding indicator definitions

INDICATOR	DEFINITION
INTERVIEWER	
EXACT	Reads question exactly as printed.
MINOR	Reads question changing a minor word (the, an, this) that does not alter the question meaning.
MAJOR	Changes wording of the question such that the meaning is altered. Interviewer does not complete reading the question as it is written.
CLARIFY	Interviewer provides clarification when evident the respondent does not understand question.
AFFECT	Interviewer demonstrates inappropriate affective responses (e.g., laughing) or leading responses/behaviors.
RESPONDENT	
CORRECT	Respondent answers question correctly. Respondent answers question with a codeable behavior.
INTERRUPT	Interrupts initial question reading with answer.
CLARIFY	Asks for repeat or clarification of question, or makes statement indicating uncertainty about question meaning.
QUALIFY	Answer meets question objective but is qualified by the respondent indicating uncertainty about accuracy.
NOT ADEQUATE	Answer does not meet question objective.
SENSITIVE	Respondent demonstrates discomfort in responding to question.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), spring 1993.

Providing a "correct" response simply means that the response fit into one of the pre-coded response alternatives. This code does not actually measure whether the data correspond to some external measure of validity. It is the opposite of category 5 (not providing an adequate answer).

The data were collected by having two project staff members listen to a taped interview and code each question and/or response using the codes described above. Coders indicated whether or not a behavior was exhibited during the asking (interviewer behavior) or responding (respondent behavior) to each question by checking the relevant code in the space provided on their coding form (see Appendix A). The coders placed a check mark on all of the appropriate behavior categories exhibited for each questionnaire item.

Interviewer and respondent behavior within a question could involve multiple interactions. In this case, multiple codes were recorded. For example, the interviewer may have made minor changes [Minor] to the question wording and also provided clarification [Clarify] to the question. Similarly, the respondent may have asked the interviewer for clarification [Clarify] about the question, but ultimately provided the correct [Correct] response to the question.

Of the 70 interviews available for analysis, 56 were listened to by only one of the coders, while 14 were coded by both individuals. Each coder listened to 15 SR interviews, 15 SS&D parent interviews, and 12 SS&D youth interviews. The 14 interviews that were coded by both coders included 5 SR interviews, 5 SS&D parent interviews, and 4 SS&D youth interviews.

The relatively small number of interviews that were coded for each questionnaire does not permit us to make statistically precise statements about differences between either individual items or questionnaires. Consequently, the analysis will concentrate on pointing out general patterns in the data that indicate systematic problems with the questionnaire.

Coder Training and Coding

Two project staff were trained in the coding procedures by a senior project member with experience in questionnaire design. One person was a telephone interviewer very familiar with computer assisted telephone interviewing (CATI) and the problems often encountered in conducting such interviews.[3] The other coder was a research assistant familiar with questionnaire coding procedures and common coding problems, but not experienced in telephone interviewing.

For training purposes, both coders and the trainer listened to one tape from each type of interview (i.e., SS&D parent, SS&D youth, and SR) as a group. After each question, the codes were discussed and decisions were made aloud regarding how to evaluate both interviewer and respondent behaviors with respect to the codes. Review of the tapes and the coding definitions continued until both coders felt comfortable in their understanding of the code definitions and procedures to follow. Training was completed in a few hours.

The data from the coding forms were keypunched. A fifth of the sample was then extracted and examined by hand. Any keypunching inconsistencies identified during this process were checked and reentered. Logical consistency checks were also performed on the entire data-set. For example, a case with codes of both correct and not adequate were obviously incorrect. When such problem cases were

[3]This individual did not administer any of the NHES:93 interviews.

identified, the hard copy rating forms were checked, and in some cases, the actual interviews were reviewed to identify the correct codes.

Coder Reliability

In this section, the results of the study of the reliability of the coding is quantified using the 14 cases that were completed by both coders. In the next section, the measures of interviewer and respondent behavior, by questionnaire, are described.

In order to examine the level of agreement between the two coders, interrater reliabilities were computed. As mentioned earlier, of the interviews coded, 14 were listened to by both coders (5 SR; 5 SS&D-parent; 4 SS&D-youth). Those interviews coded by both raters were subjected to an interrater reliability analysis. (The interviews used for training purposes were not included.)

Table 3-1 displays the number and percentage of agreement (and disagreement) in the questionnaire items coded by form. As can be seen, the overall level of agreement (including interviewer and respondent ratings) ranges from 48% (SS&D-parent) to 68% (SS&D-youth). The ratings for interviewer behavior (table 3-2) exhibit less reliability than ratings for respondent behavior (table 3-3). On the interviewer side, the lowest agreement was found on the SS&D-parent questionnaire (58%), and the highest agreement was found on the SS&D-youth (76%). On the respondent side, levels of agreement ranged from 83% (SS&D-parent) to 90% (SR).

The distinction between interviewers wording the question with the "exact" words as opposed to with "minor" changes seemed to be the hardest distinction for the coders to make. This is illustrated in table 3-4, which provides the frequency with which each coder assigned either of these two codes. As can be seen, Coder 2 assigned "exact" more often than Coder 1. The opposite is the case with the use of "minor" changes. From debriefing the coders, one key reason for this difference was that when the interviewer paused for significant amounts of time during parts of the same question, Coder 1 tended to code this as minor, whereas Coder 2 coded it as exact.

Since the differences between minor and exact were small from a definitional viewpoint, a decision was made to collapse the two codes and recompute the reliabilities. As expected, the interrater reliabilities substantially increased as a function of the collapsing of these two codes. As can be seen in table 3-5, the overall agreement increased for SR from 67% to 83%, for SS&D-parent from 48% to 78%, and for SS&D-youth from 68% to 84%. Table 3-6 presents the reliabilities of the interviewer ratings made by both coders. These findings also show substantial increases in rater agreement.

Table 3-1.--Overall level of agreement (interviewer and respondent) of ratings

Form	Number of forms	Number of questions				
		Rated the same		Rated differently		Total
		Number	Percent	Number	Percent	Number
SR	5	439	67%	217	33%	656
SS&D Parent	5	290	48%	316	52%	606
SS&D Youth	4	228	68%	105	32%	333

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), spring 1993.

Table 3-2.--Level of agreement of ratings for interviewer behavior

Form	Number of forms	Number of questions				
		Rated the same		Rated differently		Total
		Number	Percent	Number	Percent	Number
SR	5	468	71%	188	29%	656
SS&D Parent	5	350	58%	256	42%	606
SS&D Youth	4	252	76%	81	24%	333

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), spring 1993.

Table 3-3.--Level of agreement of ratings for respondent behavior

Form	Number of forms	Number of questions				
		Rated the same		Rated differently		Total
		Number	Percent	Number	Percent	Number
SR	5	592	90%	64	10%	656
SS&D Parent	5	503	83%	103	17%	606
SS&D Youth	4	290	87%	43	13%	333

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), spring 1993.

BEST COPY AVAILABLE

Table 3-4.--Number of exact/minor codes by rater and form

	Exact	Minor	Combined
CODER 1			
SR	419	229	648
SS&D Parent	224	379	603
SS&D Youth	216	114	330
CODER 2			
SR	518	131	649
SS&D Parent	434	168	602
SS&D Youth	260	72	332

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), spring 1993.

Table 3-5.--Overall level of agreement of ratings after collapsing "minor" and "exact" codes

Form	Number of forms	Number of questions				
		Rated the same		Rated differently		Total
		Number	Percent	Number	Percent	Number
SR	5	543	83%	113	17%	656
SS&D Parent	5	475	78%	131	22%	606
SS&D Youth	4	281	84%	52	16%	333

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), spring 1993.

Table 3-6.--Level of agreement of ratings for interviewer behavior after collapsing "minor" and "exact" codes

Form	Number of forms	Number of questions				
		Rated the same		Rated differently		Total
		Number	Percent	Number	Percent	Number
SR	5	581	89%	75	11%	656
SS&D Parent	5	561	93%	45	7%	606
SS&D Youth	4	312	94%	21	6%	333

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), spring 1993.

Table 3-7 lists the frequency of each type of rating by coder for the 14 cases that were coded by both individuals. At least in terms of the distribution of codes within coder, there are slightly more differences on the respondent side than the interviewer side. For interviewer behavior, the distributions are nearly identical. The only minor exception to this is a slightly smaller number of codes assigned by Coder 2 to the "clarify" category. When coding respondent behavior, the "correct", "interrupt" and "clarify" categories are very similar. There are, however, differences within the "qualify" and "not adequate" categories. Coder 1 assigned many fewer responses in the qualified (92 vs. 169) and "not adequate" categories (38 vs. 63). The results would seem to indicate that the coders generally agreed on each type of interviewer behavior. On the respondent side, they agreed when a correct answer was given, but had differences in how the "qualify" and "not adequate" categories were used.

Table 3-7.--Total number of ratings per rating category

Behavior Codes	CODER 1				CODER 2			
	SR	SS&D Parent	SS&D Youth	Total	SR	SS&D Parent	SS&D Youth	Total
INTERVIEWER								
Exact/Minor	648	603	330	1,581	649	602	332	1,583
Major	8	4	3	15	8	4	2	14
Clarify	79	90	41	210	72	69	31	172
Affect	47	9	3	59	40	12	9	61
RESPONDENT								
Correct	569	530	290	1,389	564	522	289	1,375
Interrupt	16	30	2	48	19	25	3	47
Clarify	30	22	12	64	29	19	13	61
Qualify	7	68	17	92	36	110	23	169
Not Adequate	9	19	10	130	17	25	21	63
Sensitive	1	0	0	1	0	0	0	0

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), spring 1993.

Findings

Overall Ratings by Questionnaire

Table 3-8 presents the frequency with which each code was assigned for each questionnaire. The universe of cases included in this, and each following, table is as follows: SR=25; SS&D-parent=25; and SS&D-youth=20. Fourteen of these 70 tapes had been coded twice (once by each coder) and used in the reliability analysis. For these 14 cases, half were included from each coder.

As can be seen from the table 3-8, exact and minor were the codes used the most frequently for interviewer behavior. Across all questions, these codes accounted for 85 percent to 89 percent of all the assigned codes. Interviewers were slightly more likely to read the item exactly on the SR questionnaire (70 percent) when compared to the other two questionnaires (62 percent for SS&D-parent and 66 percent

for SS&D-youth). The most prevalent of the other problem codes was "clarify" which occurred between 9 percent and 11 percent of the time. There were relatively few "major" codes assigned. The questionnaire with the highest percentage of these problems was the SS&D-parent, where this code was assigned 51 times (1.5 percent).

The vast majority of codes for questionnaire items indicate that the respondents answered correctly (i.e., provided codeable responses). More problems were evident in the codes for SS&D parents respondents; this is consistent with the findings for interviewer behavior, discussed above. The greater incidence of problems identified in the SS&D parent interviews is evident in the lower percentage of "correct" codes and the higher percentages of "not adequate" or "qualify" codes.

Table 3-8.--Total number of codes given by form

	FORM					
	SR (N=25)		SS&D Parent (N=25)		SS&D Youth (N=20)	
	Number	Percent	Number	Percent	Number	Percent
INTERVIEWER						
Exact	2,654	70.0%	2,095	62.3%	1,231	65.6%
Minor	658	17.4	772	23.0	440	23.4
Major	21	0.6	51	1.5	7	0.4
Clarify	371	9.8	382	11.4	171	9.1
Affect	88	2.3	63	1.9	28	1.5
All Codes	3,792	100.0	3,363	100.0	1,877	100.0
RESPONDENT						
Correct	2,738	86.9%	2,402	79.7%	1,411	87.5%
Interrupt	66	2.1	90	3.0	6	0.4
Clarify	126	4.0	118	3.0	41	2.5
Qualify	140	4.4	301	10.0	93	5.8
Not Adequate	70	2.2	93	3.1	62	3.8
Sensitive	12	0.4	8	0.3	0	0.0
All Codes	3,152	100.0	3,012	100.0	1,613	100.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), spring 1993.

Evaluation of Specific Survey Items

The next set of analyses evaluate the items for each questionnaire. For this analysis, we examine the frequency with which questionnaire items exhibited a high percent of behavior codes other than "exact" or "minor" (for interviewer behavior) or "correct" (for respondent behavior). In addition, for those questions that exhibit a high percent of "major" interviewer problems, the comments provided by the coders are discussed. These are used to diagnose potential reasons why a problem occurred and develop preliminary recommendations.

For those items coded as problematic because of the high prevalence of some other type of respondent/interviewer behavior (e.g., clarify and affect for interviewer behavior, and clarify and qualify for respondent behavior), there is no analysis of comments provided by the coders. This is the case because, in large part, the coders did not consistently write down comments when using the other codes. Consequently, this portion of the evaluation only provides an indication that some type of problem exists. In order to pinpoint the reasons for the problems observed, it would be necessary to go back to the tape recorded interviews and listen to those portions of the interview that exhibit the problematic patterns.

The next four subsections focus on the different questions and questionnaires. First we discuss introductory items across all three questionnaires, and then analyze the non-introductory items for SR, the non-introductory items for SS&D-parent, and finally the non-introductory items for SS&D-youth.

Introductory Items

Table 3-9 presents the frequency of ratings for the *introduction* sections of each survey. Introductions are important because they provide smooth transitions between topics of the questionnaire. They inform the respondent that the topic is going to shift and provide the respondent with an idea of what is coming next. Training for the NHES:93 placed special emphasis on the need to read these introductions exactly as worded.

As can be seen from the table, interviewers, for the most part, read the introductions exactly or with minor revisions. A major change to introduction wording was indicated only once on the SR questionnaire (ECINTRO). Interviewers clarified the introduction in three instances, all in the SR questionnaire (i.e., KINTRO2, HAINTRO, TVINTRO), and displayed inappropriate affect six times on the SR questionnaire (three of which were LFINTRO) and two times on SS&D-parent (both on PINTRO).

While the reliability analysis discussed above indicated that one should not distinguish between "exact" and "minor" codes, it is worth noting that the introductory statements have extremely high numbers of "minor" problems associated with them. For example, for the SR questionnaire, the overall ratio of numbers of exact to minor codes for the introductions is 1.7. This compares to a ratio of 4 for all items on the questionnaire (2654 to 658). There are several introductions where half or more had a minor change (RINTRO, DPINTRO, ECINTRO, HAINTRO, TVINTRO). For several of these, a small number of "major" and "clarify" codes are also present.

Table 3-9.--Frequency of rating on introductions

FORM/QNUM		Rating				
		Exact	Minor	Major	Clarify	Affect
SR	(N=25)					
INTRO		1	2	0	0	0
RINTRO		6	15	0	0	0
DPINTRO		6	7	0	0	0
ECINTRO		13	11	1	0	0
SAINTRO		9	3	0	0	0
TEACHINT		9	3	0	0	0
KINTRO1		8	5	0	0	1
KINTRO2		10	2	0	1	0
PINTRO		5	2	0	0	0
HAINTRO		14	11	0	1	0
TVINTRO		14	10	0	1	1
HNINTRO		19	6	0	0	0
PKINTRO		8	4	0	0	1
LFINTRO		18	7	0	0	3
ARINTRO		13	6	0	0	0
HINTRO		15	4	0	0	0
Total		**168**	**98**	**1**	**3**	**6**
SS&D PARENT	(N=25)					
INTRO		0	2	0	0	0
PINTRO		3	16	0	0	2
SSINTRO		17	8	0	0	0
SDINTRO		20	5	0	0	0
TADINTRO		15	6	0	0	0
CCINTRO		18	7	0	0	0
LFINTRO		9	9	0	0	0
HINTRO		12	6	0	0	0
Total		**94**	**59**	**0**	**0**	**2**
SS&D YOUTH	(N=20)					
YINTRO		1	7	0	0	0
SSINTRO		16	3	0	0	0
TADINTRO		17	2	0	0	0
Total		**34**	**12**	**0**	**0**	**0**

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), spring 1993.

The tendency to change the wording of these introductions may reflect the need of the interviewer to adapt the transition to the specific context of what is being said by the respondent at the time. If this is the case, it may be worth considering rewording those introductions that have the highest rate of minor problems. It may also reflect old habits interviewers may have. In many surveys, introductions, especially those at the time of initial contact, are given as guides, rather than as items to be read verbatim. Given this possibility, it may be worth taking a second look at the training materials and place even more emphasis on reading these items exactly as worded.

School Readiness Questions

Appendix B presents the frequencies for the behavioral codes for each questionnaire item on the SR instrument. Overall, there are relatively few questions that received a "major" change in question wording by the interviewer or a "not adequate" response by the respondents. Across all questions and the 25 cases that were coded, the major category was only used a total of 20 times. With one exception, no question received this rating more than once.

The exception was question number R93. This question focused on the number of hours of television viewing by the child on Saturday and Sunday. Specifically, the wording of the question was as follows:

> *R93. "How about on Saturday and Sunday? How many hours does (child) watch television or video tapes at home on...a. Saturday b. Sunday*

Comments by the coders indicated that the interviewer left out (i.e., skipped) the introduction to this item in each of the four instances. This may reflect the fact that the introduction is redundant with the answer categories.

This question is also embedded within a sequence of items where the interviewer needed to clarify the question(s) and where the respondent frequently qualified the answer. The fact that the interviewer was dropping the introduction to R93 may be indicative of the fact that respondents were having some problems with these items and interviewers had a hard time following the prescribed sequence of questions. Since the answer categories in R93 are redundant with the introduction, interviewers may have been more likely to skip the introduction to maintain conversational continuity. For example, questions R92a,b,c (which concern weekday television viewing hours) and R93a,b (which concerned weekend viewing) all had 5 to 9 cases coded as needing interviewer clarification. Similarly, these same questions had 1 to 11 instances where the respondent somehow qualified his/her answer.[4] This indicates that respondents were not particularly confident in the quality of the information that they were providing on hours of television viewing.

There were a few other questions that appeared to have a high number of instances that interviewers or respondents either had to clarify or qualify statements. The series of questions R51a - R51f had 2 to 6 instances of interviewers clarifying responses and 1 to 3 instances where the responses were coded as "not adequate". These questions use a set of pre-coded frequency categories:

> R51a. *[On the average, during the first two months of this school year, that is last September and October,] did (child) complain about school more than once a week, once a week or less or not at all?*

[4]Remember that these frequencies are based on 25 cases. A question with frequency of 11 "qualify" responses indicates that this qualification occurred nearly 50% of the time (11/25).

It may be the case that respondents did not understand how to use the answer categories for these questions. It may also be the case that interviewers did not carry forward the introduction to this series of items (see bracketed phrase above). If this occurred, then the stems of the questions appear to be "yes/no" items, rather than providing one of the frequency categories. To confirm this hypothesis it would be necessary to review the recordings for the cases exhibiting these problems.

The question sequence R38 - R39 indicated a relatively large number of clarifications on the part of both the interviewer (7 and 6 times) and respondent (1 and 3 times). R38 also had two instances that the respondent did not provide an adequate answer.[5] These problems may stem from the fact that R38 contains several qualifying phrases and conditions:

> R38. *Not counting child care in private home (or Head Start), how old was (CHILD) in years and months when (he/she) first attended any nursery school, pre-kindergarten, preschool or day care center?*

This may account for the need of the interviewer to assist the respondent in understanding what is being asked and why the respondent asks for clarification.

Other items that appear to have high instances of interviewer clarification include: R1 (7 times), R13 (5 times), R46 (4 times for pre-kindergartners), R55 (9 times), R56 (9 times), R137 (6 times), R167 (9 times). Several of these items seem straightforward. for example, R1 asks to confirm the child's birthdate, R137 covers highest grade completed, and R167 asks for ZIP Code. There does not appear to be any associated problems with respondent behavior for any of these questions. It would appear, therefore, that while there is quite of bit of clarification for these items, the interviewer and respondent do seem to eventually arrive at a response that is both acceptable and not overly qualified by the respondent.

School Safety and Discipline Parent Interview

Appendix C presents the frequencies for each question on the SS&D-parent questionnaire. As discussed earlier, this questionnaire seemed to display the most problems across the three different interviews that were examined. The major code was used 51 times (no major code was used on introductory sections).

Questions which received this code 3 to 5 times include:

> P2 (3 times) Child's race. In two instances, coder comments indicated that the interviewer paused halfway through the question. This reflects the interviewer waiting for the respondent to verify the child's race after each answer category or volunteer a category once understanding the range of possible responses.
>
> P9 (4 times) Type of father who lives in the household. In two instances, the interviewer either paused during the question or did not ask the complete question. This question actually contains two different questions -- Is the father living with the child? If not, who is the father figure in the household? It may be worth considering breaking this item up into two questions if the item is repeated in a future NHES collection.

[5]These frequencies are quite high considering that these questions only apply to those children who had ever attended some type of pre-kindergarten program (see Q.37).

P9a (4 times) The name of the father who lives in the household. In two instances, the coders commented that the interviewer "led" the respondent to an answer (e.g., the interviewer read a specific name off of the household roster). This seems to be a training issue. It should be emphasized that interviewers should not read names off of the household roster or they should read the entire list.

PY29 (3 times) Incidence of robbery from students or teachers at school. In two instances, the coders commented that the entire question was not completed. In one instance, the interviewer paused to allow the respondent to provide an answer. In the other instance, the interviewer left out the word "at school".

PY34 (3 times) Heard of incidents of bullying during school year. In two instances, the interviewer did not complete the example portion of the question. In one instance, the interviewer paused, which allowed the respondent to interrupt with an answer. In another instance, the interviewer simply omitted the example entirely. It may be preferable to eliminate one of the two questions asked in the item, e.g., either ask about "bullying" or if "students pick on others."

PY94 (5 times) Parental feelings about their child drinking alcoholic beverages. Coder comments indicate that the interviewer did not complete the question. In three instances, the last part of the question, "A small amount on ...." was left out. This question might be restructured by prefacing the question with a short qualifying phrase like "Excluding special occasions, ..." and delete the last sentence that now has a tendency to be excluded. Alternatively, special emphasis could be given in training to make sure the interviewer reads the entire question to the respondent before recording the response.

Other single items that received higher numbers of problematic codes for interviewer behavior include P107 (education - interviewer clarified 9 times), P111 (hours worked per week - interviewer clarified 8 times), P122 (zip code - interviewer clarified 11 times). Equivalent items to P107 and P122 on the SR questionnaires had similar problems

In addition to these single items, there were clusters of items with a larger than average number of codes that were not "exact", "minor" or "correct". These include:

Interviewers/Respondents Clarifying, Inadequate Responses

Items PY92 - PY97. Smoking, drinking and the safety of the respondent's neighborhood. These items were higher than average on interviewers clarifying the question or respondents interrupting, clarifying or not providing an adequate answer. The most extreme example of this is PY95, which was clarified by the interviewer 12 times out of a possible 25 cases. These results may be related to the sensitivity surrounding responses concerning smoking, drinking, and neighborhood safety.

Items PY21a - PY23. Experiences of child since beginning of school year, attitude toward good grades and behavior. Interviewers clarified a large number of times; respondents also asked for clarification, qualified and provided inadequate answers a number of times. These items contain two different sets of Likert scales. PY22 switches to a different Likert scale. It is not uncommon for respondents to forget the response categories in a series, and some problems with noncodeable responses may be alleviated by having interviewers read the categories for the first two or three statements in the series. The need for clarification may result from some respondents never having given thought to the questions asked about school environment, and their request for clarification may be a "stalling tactic."

BEST COPY AVAILABLE

Items PY62a - PY62e. Access to alcohol/drugs while on school grounds. - This item had similar problems as PY21a, except not as extreme. This is also a set of items using a Likert scale. As noted above, helping the respondent to "catch on" to the response categories in a Likert scale may alleviate some response problems. However, these items concerning access to alcohol and drugs are, by their nature, sensitive, and some respondents may be reluctant to report on such problems at their (or their child's) school, or may feel uninformed. Under these conditions, requests for clarification may reflect stalling.

Items P13 - P19. Characteristics of the school the child is attending. - As with PY92 - PY97, these items were high on interviewer clarification. They also resulted in a moderate number of instances of respondents clarifying, qualifying and providing inadequate answers. P18 and P19 had a large number instances where the respondent interrupted the interviewer to answer the question. Lack of knowledge concerning items such as school size may lead to requests for clarification and inadequate responses. Regarding the interruptions, it is not uncommon for respondents to stop an interviewer who is reading a list when the correct answer (e.g., school size) is reached.

Respondents Qualifying Answers

Items P55 - P55h. Security measures in school. - Respondents had a tendency to qualify their responses to these items. The most extreme case is for item P55e (limits on restrooms) in which 15 respondents qualified their answer. Prior to conducting the NHES:93, cognitive laboratory activities indicated that parents have imperfect knowledge of practices and incidents at their children's schools. The qualification of answers may reflect that respondents are indicating that they are unsure of their answers.

Items P45 - P47. Incidents that occurred in school; presence of fighting gangs. - These items were high on respondents qualifying their responses (P46, P47) and interviewers clarifying the question (P45, P47). As noted above, some lack of parent knowledge concerning incidents at school was anticipated. Qualification of answers may reflect parents communicating that they are unsure of their responses.

Items P68 - P68d. Alcohol and drug education in school. These items were high on respondents qualifying their answers. Again, this may be associated with lack of knowledge about practices at the child's school.

Two general observations can be made from these findings. First, items with Likert scales are leading to additional interactions between the interviewer and respondent. This can be seen especially at the beginning of the sequence using a particular response format. Mixing Likert scales may be even more confusing. See, for example, the number of clarifications required for PY22 (16 times), which switches the format of the Likert scale from what had been used in the PY21 series of questions. To resolve exactly why these patterns are occurring and whether they are indicative of serious problems in the questionnaire, it might be instructive to listen to those tapes that exhibited the problems again and to explore these items in cognitive laboratory work if they are used again in the future.

When a particular question (or set of questions) has a high number of respondents qualifying answers, the question may be either worded poorly or asking for information that respondents do not feel comfortable providing. Discomfort might result because the respondent does not know the answer (e.g., proxy information on the child's curriculum) or because the information requested is sensitive.

School Safety and Discipline-Youth

Appendix D presents the frequencies for each question on the SS&D-Youth questionnaire. Comapred to the SS&D questionnaire, this questionnaire had a smaller number of instances in which problem codes were used (that is, codes other than exact, minor, or correct). There were only a total of 7 instances that the "major" category was used. The questions that lead to the most problems are primarily the same questions that displayed problems on the SS&D-parent version. These include: PY21-PY23, PY29, PY34, PY55 series, PY62 series and PY92-PY96.

None of the remaining questions have an extremely large number of problem codes associated with them. Those that are above average include Y60a - Y60e (interviewer clarifying), Y44c - Y44f (interviewer clarifying and respondent qualifying answer) and PY47.

Implications

Overall, the results of this analysis indicate that the majority of questions in the three questionnaires were read as written by the interviewer (or with only minor revision) and respondents provided a "codeable" response. The major exception to this were the introductory items for each section of the questionnaire. These items exhibited an unusually high number of instances where there was a "minor" change in the wording of the statement.

The SS&D-parent questionnaire had the highest frequency of problem codes, although a number of the questions exhibiting problems were common to the youth version of this questionnaire. We speculate that this may be because much of the information that the parent is asked to provide may not readily be within his/her knowledge base (e.g., questions on school safety and the school curriculum).

The most frequent problem code used was when the interviewer had to clarify the question. This seemed to be prevalent in a variety of situations. The most common was when a Likert scale was being used.

The specific items that exhibited higher than average problem codes for all three questionnaires were provided in the tables and text. To explore the exact nature of these problems and the associated methods to eliminate the problems would require going back to the specific question items discussed above and getting a more detailed diagnosis of why the problems are occurring. Should these same items or instruments be used again, these questions could be further evaluated, either from the recorded interviews or in cognitive laboratory investigations, before they are used in future studies. These evaluations are needed to better understand the consequences of the behaviors noted in this report.

References

Brick, J.M., Collins, M.A., Nolin, M.J., Davies, E., and Feibus, M.L. (forthcoming). *Design, Data Collection, Monitoring, Interview Administration Time, and Data Editing in the 1993 National Household Education Survey*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.

Brick, J.M., Rizzo, L., and Wernimont, J. (1996). *Reinterviews in the 1993 National Household Education Survey*. NCES Publication No. 97-339. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.

Burgess, M.J., & Paton, D. (1993) "Coding respondent behavior by interviews to test questionnaire wording." 1993 Proceedings of the American Statistical Association, San Francisco, CA.

Esposito, J.C., Campanelli, P.C., & Polivka, A.E. (1991) "Determining which questions are best: Methodologies for evaluating survey questions." *1991 Proceedings of the Section on Survey Research Methods*, American Statistical Association, Alexandria, VA, pp 46-55.

Oksenberg, L, Cannell, C., & Kalton, G. (1991) "New strategies for pretesting survey questions." *Journal of Official Statistics*, 7:349-365.

Suchman, L. & Jordan, B. (1990) "Interactional troubles in face-to-face interviews." *Journal of the American Statistical Association*, 85:232-91.

APPENDIX A

RECORDED INTERVIEW CODING FORMS

NHES:93 SCHOOL READINESS INTERVIEW

RESPONDENT ID: _____ **INTERVIEWER INITIALS:** _____

	INTERVIEWER						RESPONDENT						
QUESTION NUMBER	Exact	Minor	Major	Clarify	Affect		Correct	Interrupt	Clarify	Qualify	Not Adequate	Sensitive	Comments
INTRO													
R1													
R2													
R3													
R4													
R5													
R6													
R7													
R8													
RINTRO													
R10													
R11													
R12													
R13													
DPINTRO													
R14													
R15													
R16													
R17													
R18													
R19													
R20													
R21													
R22													

BEST COPY AVAILABLE

NHES:93 SCHOOL READINESS INTERVIEW

	INTERVIEWER						RESPONDENT						
QUESTION NUMBER	Exact	Minor	Major	Clarify	Affect		Correct	Interrupt	Clarify	Qualify	Not Adequate	Sensitive	Comments
R23													
R24													
R25													
R26													
R27													
R28													
R29													
R30													
R31													
ECINTRO													
R32													
R32A													
R33													
R34													
R35													
R36													
R36A													
R37													
R38													
R39													
R40													
R41													
R42													
R43													
R44													
R45													

BEST COPY AVAILABLE

NHES:93 SCHOOL READINESS INTERVIEW

	INTERVIEWER						RESPONDENT						
QUESTION NUMBER	Exact	Minor	Major	Clarify	Affect		Correct	Interrupt	Clarify	Qualify	Not Adequate	Sensitive	Comments
R46													
R47													
R48													
R49													
SAINTRO													
R51													
R51a													
R51b													
R51c													
R51d													
R51e													
R51f													
TEACHINT													
R52													
R52a													
R52b													
R52c													
R52d													
R52e													
R52e													
R52f													
R52g													
R52h													
R52i													
R52j													
R52k													
R52l													

BEST COPY AVAILABLE

NHES:93 SCHOOL READINESS INTERVIEW

	INTERVIEWER						RESPONDENT						
QUESTION NUMBER	Exact	Minor	Major	Clarify	Affect		Correct	Interrupt	Clarify	Qualify	Not Adequate	Sensitive	Comments
R52m													
R53													
KINTRO1													
R55													
KINTRO2													
R56													
R58													
R59													
R60													
R61													
R62													
R63													
R64													
R65													
R66													
R67													
R68													
R69													
R70													
PINTRO													
R71													
R72													
R73													
R74													
R75													
R76													

BEST COPY AVAILABLE

NHES:93 SCHOOL READINESS INTERVIEW

	INTERVIEWER						RESPONDENT						
QUESTION NUMBER	Exact	Minor	Major	Clarify	Affect		Correct	Interrupt	Clarify	Qualify	Not Adequate	Sensitive	Comments
R77													
R78													
R79													
R79a													
R79b													
R79c													
R79e													
R80													
R80A													
R80B													
R81													
R82													
R83													
R84													
R85													
HAINTRO													
R86													
R87													
R88													
R89													
R90													
R91													
TVINTRO													
R92													
R92a													

BEST COPY AVAILABLE

NHES:93 SCHOOL READINESS INTERVIEW

	INTERVIEWER						RESPONDENT						
QUESTION NUMBER	Exact	Minor	Major	Clarify	Affect		Correct	Interrupt	Clarify	Qualify	Not Adequate	Sensitive	Comments
R92b													
R92c													
R92d													
R93a													
R93b													
R94													
R95													
R96A													
R96													
R96													
R97													
R98													
R99													
R99a													
R99b													
R99c													
R99d													
R99e													
R99f													
R99g													
R99h													
R100													
R100a													
R100b													
R100c													
R100d													

C1

BEST COPY AVAILABLE

C2

NHES:93 SCHOOL READINESS INTERVIEW

	INTERVIEWER						RESPONDENT						
QUESTION NUMBER	Exact	Minor	Major	Clarify	Affect		Correct	Interrupt	Clarify	Qualify	Not Adequate	Sensitive	Comments
R100e													
R100f													
HNINTRO													
R101													
R102													
R103													
R104													
R105													
R105a													
R105b													
R105c													
R105d													
R105e													
R105f													
R105g													
R105h													
R105i													
R105j													
R105A													
R105B													
R105C													
R106													
R107													
R108													
R109													
R110													

BEST COPY AVAILABLE

NHES:93 SCHOOL READINESS INTERVIEW

	INTERVIEWER						RESPONDENT						
QUESTION NUMBER	Exact	Minor	Major	Clarify	Affect		Correct	Interrupt	Clarify	Qualify	Not Adequate	Sensitive	Comments
R111													
R112													
R113													
R114													
R115													
R116													
R117													
R118													
PKINTRO													
R119													
R120													
R121													
R122													
R123													
R124													
R125													
R126													
R127													
R128													
R129													
R130													
R131													
LFINTRO													
R132													
R133													
R134													

BEST COPY AVAILABLE

NHES:93 SCHOOL READINESS INTERVIEW

	INTERVIEWER						RESPONDENT						
QUESTION NUMBER	Exact	Minor	Major	Clarify	Affect		Correct	Interrupt	Clarify	Qualify	Not Adequate	Sensitive	Comments
R135													
R136													
R137													
R138													
R139													
R140													
R141													
R142													
R143													
R144													
R145													
R146													
R147													
R148													
R149													
R150													
R151													
R152													
R153													
R154													
R155													
R156													
R157													
ARINTRO													
R158													
R158a													

BEST COPY AVAILABLE

NHES:93 SCHOOL READINESS INTERVIEW

	INTERVIEWER						RESPONDENT						
QUESTION NUMBER	Exact	Minor	Major	Clarify	Affect		Correct	Interrupt	Clarify	Qualify	Not Adequate	Sensitive	Comments
R158b													
R158c													
R158d													
R158e													
R158f													
R158g													
R158h													
R158i													
R158j													
R158k													
R158L													
R158m													
R159													
R159a													
R159b													
R159c													
R159d													
R159e													
R159f													
R159g													
HINTRO													
R160													
R161													
R162													
R163													
R164													

BEST COPY AVAILABLE

NHES:93 SCHOOL READINESS INTERVIEW

	INTERVIEWER						RESPONDENT						
QUESTION NUMBER	Exact	Minor	Major	Clarify	Affect		Correct	Interrupt	Clarify	Qualify	Not Adequate	Sensitive	Comments
R165													
R166													
R167													
R168													

COMMENTS

NHES:93 SCHOOL SAFETY AND DISCIPLINE INTERVIEW

RESPONDENT ID: _____ ☐ ADULT ☐ YOUTH INTERVIEWER INITIALS: _____

	INTERVIEWER						RESPONDENT						
QUESTION NUMBER	Exact	Minor	Major	Clarify	Affect		Correct	Interrupt	Clarify	Qualify	Not Adequate	Sensitive	Comments
INTRO													
P1													
P2													
P3													
P4													
P5													
P6													
P7													
P7A													
P8													
P8A													
P9													
P9A													
PINTRO													
P10													
P11													
P12													
P13													
P14													
P15													
P16													
P17													
P18													
P19													

NHES:93 SCHOOL READINESS INTERVIEW

	INTERVIEWER						RESPONDENT						
QUESTION NUMBER	Exact	Minor	Major	Clarify	Affect		Correct	Interrupt	Clarify	Qualify	Not Adequate	Sensitive	Comments
P20													
YINTRO													
PY21													
PY21a													
PY21b													
PY21c													
PY21d													
PY21e													
PY22													
PT23													
PY24													
P25													
SSINTRO													
PY26													
PY27													
PY28													
PY29													
PY30													
PY31													
PY32													
PY33													
PY34													
PY35													
PY36													
PY37													
PY38													

BEST COPY AVAILABLE

NHES:93 SCHOOL READINESS INTERVIEW

	INTERVIEWER						RESPONDENT						
QUESTION NUMBER	Exact	Minor	Major	Clarify	Affect		Correct	Interrupt	Clarify	Qualify	Not Adequate	Sensitive	Comments
PY39													
PY40													
PY41													
PY42													
PY43													
Y44													
Y44a													
Y44b													
Y44c													
Y44d													
Y44e													
Y44f													
P45													
PY46													
PY47													
PY48													
PY49													
PY50													
Y51													
Y52													
Y52a													
Y52b													
Y52c													
Y52d													
Y52e													
Y52f													

BEST COPY AVAILABLE

NHES:93 SCHOOL READINESS INTERVIEW

	INTERVIEWER						RESPONDENT						
QUESTION NUMBER	Exact	Minor	Major	Clarify	Affect		Correct	Interrupt	Clarify	Qualify	Not Adequate	Sensitive	Comments
Y52g													
Y52h													
Y52i													
PY53													
P54													
P54a													
P54b													
P54c													
P54d													
P54e													
PY55													
PY55a													
PY55b													
PY55c													
PY55d													
PY55e													
PY55f													
PY55g													
PY55h													
SKINTRO													
P56													
P57													
P58													
P59													
Y60													
Y60a													

BEST COPY AVAILABLE

NHES:93 SCHOOL READINESS INTERVIEW

	INTERVIEWER						RESPONDENT						
QUESTION NUMBER	Exact	Minor	Major	Clarify	Affect		Correct	Interrupt	Clarify	Qualify	Not Adequate	Sensitive	Comments
Y60b													
Y60c													
Y60d													
Y60e													
Y60f													
TADINTRO Y61													
Y61a													
Y61b													
Y61c													
Y61d													
PY62													
PY62a													
PY62b													
PY62c													
PY62d													
PY62e													
PY63													
PY64													
PY65													
PY66													
P67													
PY68													
PY68a													
PY68b													
PY68c													

NHES:93 SCHOOL READINESS INTERVIEW

	INTERVIEWER						RESPONDENT						
QUESTION NUMBER	Exact	Minor	Major	Clarify	Affect		Correct	Interrupt	Clarify	Qualify	Not Adequate	Sensitive	Comments
PY68d													
Y69													
CCINTRO													
P70													
P71													
P72													
P73													
P74													
P75													
P77													
P78													
P79													
P80													
P81													
P82													
P83													
P83a													
P83b													
P83c													
P83d													
PY84													
PY84a													
PY84b													
PY84c													
PY85													
PY86													

BEST COPY AVAILABLE

NHES:93 SCHOOL READINESS INTERVIEW

	INTERVIEWER						RESPONDENT						
QUESTION NUMBER	Exact	Minor	Major	Clarify	Affect		Correct	Interrupt	Clarify	Qualify	Not Adequate	Sensitive	Comments
PY87													
PY88													
PY88a													
PY88b													
PY88c													
P89													
P89a													
P89b													
P89c													
P90													
P91													
PY92													
PY93													
PY94													
PY95													
PY96													
PY97													
Y98													
LFINTRO													
P99													
P100													
P101													
P102													
P103													
P104													
P105													

NHES:93 SCHOOL READINESS INTERVIEW

	INTERVIEWER						RESPONDENT						
QUESTION NUMBER	Exact	Minor	Major	Clarify	Affect		Correct	Interrupt	Clarify	Qualify	Not Adequate	Sensitive	Comments
P106													
P107													
P108													
P109													
P110													
P111													
P112													
P113													
P114													
HINTRO													
P116													
P117													
P118													
P119													
P120													
P121													
P122													
P123													

COMMENTS

87 88

APPENDIX B

FREQUENCY OF RATING FOR

SCHOOL READINESS QUESTIONNAIRE (SR)

Table A. Frequency of Rating: SR (N=25)

	INTERVIEWER					RESPONDENT					
QNUM	Exact	Minor	Major	Clarify	Affect	Correct	Interrupt	Clarify	Quality	No Adequate	Sensitive
INTRO	1	2	0	0	0	0	0	0	0	0	0
R1	13	4	0	7	0	17	0	0	1	0	0
R2	10	6	1	1	0	12	9	1	0	1	0
R3	12	4	1	1	0	16	0	1	0	1	0
R4	5	0	0	0	0	5	0	0	0	0	0
R6	1	2	0	0	0	3	0	0	0	0	0
R8	3	2	0	0	0	5	0	0	0	0	0
RINTRO	6	15	0	0	0	0	0	0	0	0	0
R10	18	1	0	0	1	19	0	0	0	0	0
R11	0	1	0	0	0	1	0	0	0	0	0
R12	8	6	0	0	0	13	2	0	0	0	0
R13	10	2	0	5	0	11	0	1	1	0	1
DPINTRO	6	7	0	0	0	0	0	0	0	0	0
R14	9	4	0	2	0	12	2	0	0	0	0
R15	9	4	0	2	0	12	1	0	1	1	0
R16	10	3	0	3	1	12	2	1	2	0	0
R17	12	1	0	0	0	12	1	0	0	0	0
R18	12	1	0	1	1	13	0	0	0	0	0
R19	13	0	0	1	0	13	0	0	0	1	0
R20	13	0	0	3	0	13	0	0	0	3	0
R21	11	2	0	1	0	13	0	0	0	0	0
R22	11	1	1	2	0	13	0	1	0	0	0
R23	13	0	0	0	2	13	0	0	1	0	0
R24	12	1	0	3	1	12	0	0	2	2	0
R25	13	0	0	1	1	12	0	1	1	0	0
R26	12	1	0	1	1	12	0	0	2	0	0
R27	12	1	0	3	0	13	0	2	0	0	0
R28	10	3	0	2	0	12	0	1	1	0	0
R29	12	1	0	1	0	13	0	0	0	0	0
R30	12	1	0	0	0	12	0	0	1	0	0
R31	11	2	0	0	1	13	0	0	0	0	0
ECINTRO	13	11	1	0	0	2	0	0	0	0	0
R32	13	0	0	0	0	13	0	0	0	0	0
R33	22	1	0	2	0	22	0	2	0	0	0
R34	2	0	0	2	0	3	0	0	0	0	0
R35	1	1	0	0	0	2	0	0	0	0	0
R36	11	1	1	0	1	12	2	0	0	0	0
R36A	1	0	0	0	1	1	0	0	0	0	0
R37	12	5	1	0	0	17	1	1	0	0	0

Table A. (continued)

QNUM	INTERVIEWER					RESPONDENT					
	Exact	Minor	Major	Clarify	Affect	Correct	Interrupt	Clarify	Quality	No Adequate	Sensitive
R38	7	6	1	7	1	13	2	1	1	2	0
R39	7	7	0	6	0	11	1	3	1	0	0
R40	14	2	0	4	1	13	0	3	1	2	0
R41	5	1	0	0	0	6	0	0	0	0	0
R42	3	2	0	0	1	4	0	0	0	0	0
R43	5	1	0	0	0	5	0	0	0	0	0
R44	4	2	0	1	0	3	0	0	1	0	0
R45	3	3	0	1	1	5	0	0	1	0	0
R46	3	3	0	4	2	4	0	1	2	0	0
R47	5	1	0	0	1	5	0	0	0	0	0
R48	4	2	0	1	0	5	0	0	2	0	0
R49	1	5	0	0	0	6	0	0	0	0	0
SAINTRO	9	3	0	0	0	0	0	0	0	0	0
R51	10	2	0	0	0	0	0	0	0	0	0
R51a	10	1	1	2	1	10	0	1	1	2	1
R51b	10	2	0	4	1	10	0	0	1	3	1
R51c	10	1	0	2	0	10	0	0	1	1	0
R51d	11	0	0	6	1	11	0	2	0	3	0
R51e	10	1	0	4	2	11	0	0	0	3	0
R51f	10	1	0	4	1	11	0	0	1	2	0
TEACHINT	9	3	0	0	0	0	0	0	0	0	0
R52	12	0	0	1	0	1	0	1	0	0	0
R52a	12	0	0	2	0	12	0	1	0	1	0
R52b	11	1	0	2	0	12	0	0	0	1	0
R52c	11	1	0	3	1	11	0	2	0	1	0
R52d	11	1	0	0	0	12	1	0	0	0	0
R52e	12	0	0	0	0	12	0	0	0	0	0
R52f	11	1	0	1	0	13	0	0	0	0	0
R52g	12	0	0	0	0	12	0	0	0	0	0
R52h	12	0	0	0	0	11	0	0	1	0	0
R52i	12	0	0	0	0	12	0	0	0	0	0
R52j	12	0	0	2	0	12	0	1	1	0	0
R52k	11	0	0	0	0	11	0	0	0	0	0
R52l	12	0	0	1	0	12	0	0	0	1	0
R52m	9	2	0	0	0	8	0	0	3	0	0
R53	10	1	0	4	0	13	0	3	0	0	0
KINTRO1	8	5	0	0	1	0	0	0	0	0	0
R55	12	1	0	9	0	12	0	0	1	2	0
KINTRO2	10	2	0	1	0	1	0	1	0	0	0

Table A. (continued)

	INTERVIEWER					RESPONDENT					
QNUM	Exact	Minor	Major	Clarify	Affect	Correct	Interrupt	Clarify	Quality	No Adequate	Sensitive
R56	19	4	0	9	1	21	0	3	1	2	0
R58	7	0	0	0	0	7	0	0	0	0	0
R59	11	1	0	2	0	10	0	0	3	0	0
R60	5	7	0	0	0	12	0	0	0	0	0
R61	8	1	0	2	0	10	0	1	0	0	0
R62	3	0	0	0	0	3	0	0	0	0	0
R63	11	1	0	0	0	12	0	0	0	0	0
R64	9	3	0	3	0	9	0	2	3	0	0
R65	3	1	0	0	0	4	0	0	0	0	0
R66	5	3	0	1	1	7	0	1	0	1	0
R67	2	1	0	0	0	3	0	0	0	0	0
R68	3	0	0	0	0	3	0	0	0	0	0
R69	2	0	0	0	0	2	0	0	0	0	0
R70	3	0	0	0	0	3	0	0	0	0	0
PINTRO	5	2	0	0	0	0	0	0	0	0	0
R71	6	0	1	0	0	7	0	0	0	0	0
R72	4	2	1	0	0	7	0	0	0	0	0
R74	7	1	0	0	0	8	0	0	0	0	0
R75	4	0	0	1	0	4	1	0	0	0	0
R76	6	2	0	0	0	8	0	0	0	0	0
R77	6	2	0	1	0	8	1	0	0	0	0
R78	3	0	0	1	0	2	0	0	1	0	0
R79	8	0	0	0	0	1	0	0	0	0	0
R79a	8	0	0	0	0	8	0	0	1	0	0
R79b	7	1	0	0	0	8	0	0	0	0	0
R79c	8	0	0	0	0	8	0	0	0	0	0
R79d	8	0	0	0	0	8	0	0	0	0	0
R79e	8	0	0	1	0	8	0	1	0	0	0
R80	10	2	0	0	0	10	1	0	0	0	0
R80a	2	1	0	0	0	3	0	0	0	0	0
R80b	0	0	0	0	0	1	0	0	0	0	0
R81	8	0	0	0	0	8	0	0	0	0	0
HAINTRO	14	11	0	1	0	2	0	0	0	0	0
R86	22	3	0	3	0	20	0	2	2	2	0
R87	9	2	0	2	0	10	2	0	1	1	0
R88	8	2	0	3	0	9	0	0	3	1	0
R89	13	1	0	2	1	13	0	1	0	0	0
R90	13	1	0	4	1	13	0	2	0	0	0
R91	19	6	0	3	2	18	4	3	4	1	0

Table A. (continued)

QNUM	INTERVIEWER					RESPONDENT					
	Exact	Minor	Major	Clarify	Affect	Correct	Interrupt	Clarify	Quality	No Adequate	Sensitive
TVINTRO	14	10	0	1	1	1	0	1	0	0	0
R92	12	12	1	0	0	0	0	1	0	0	0
R92a	24	1	0	7	1	24	0	4	1	2	0
R92b	14	11	0	6	1	21	0	0	4	2	0
R92c	17	8	0	5	2	17	0	3	10	0	0
R92d	12	13	0	2	1	21	0	0	5	1	0
R93	14	6	4	0	0	0	0	0	0	0	0
R93a	22	3	0	9	2	16	0	2	11	3	0
R93b	11	14	0	5	1	19	0	0	8	1	0
R94	10	6	1	4	2	14	0	1	4	0	0
R95	11	1	0	1	1	10	2	1	1	0	0
R96a	12	4	1	1	1	14	1	1	2	0	0
R96	6	2	0	0	1	9	0	0	0	0	0
R97	7	1	0	2	0	8	0	2	0	0	0
R98	4	1	0	2	0	5	0	0	0	0	0
R99	14	3	0	1	0	0	0	1	0	0	0
R99a	14	3	0	8	0	17	0	4	1	0	0
R99b	13	4	0	6	1	16	0	0	1	0	0
R99c	12	5	0	8	1	14	0	1	2	1	0
R99d	13	4	0	2	0	15	0	1	3	0	0
R99e	11	6	0	5	0	17	0	2	0	0	0
R99f	12	5	0	7	2	16	0	4	1	1	0
R99g	7	10	0	5	1	17	1	0	0	1	0
R99h	10	7	0	5	0	16	0	1	2	0	0
R100	14	3	0	1	0	0	0	1	1	0	0
R100a	14	3	0	4	0	16	0	3	0	0	0
R100b	14	3	0	3	0	17	0	1	0	0	0
R100c	14	3	0	2	0	17	0	1	0	0	0
R100d	14	3	0	2	0	17	0	0	0	1	0
R100e	14	3	0	1	0	17	0	0	0	0	0
R100f	14	3	0	3	0	16	0	1	1	0	0
HNINTRO	19	6	0	0	0	0	0	0	0	0	0
R101	24	1	0	2	3	24	0	0	0	0	0
R102	6	0	0	0	1	4	1	0	0	0	0
R103	20	5	0	1	1	22	6	0	0	0	0
R104	25	0	0	0	0	25	0	0	0	0	0
R105	21	4	0	0	0	1	0	0	0	0	0
R105a	24	1	0	1	0	25	0	1	0	0	0
R105b	22	3	0	0	0	25	0	0	0	0	0

Table A. (continued)

	INTERVIEWER					RESPONDENT					
QNUM	Exact	Minor	Major	Clarify	Affect	Correct	Interrupt	Clarify	Quality	No Adequate	Sensitive
R105c	22	2	0	0	0	24	0	0	0	0	0
R105d	22	3	0	0	0	24	0	0	0	0	0
R105e	23	2	0	1	1	25	0	1	0	0	0
R105f	23	2	0	0	1	25	0	0	0	0	0
R105g	23	2	0	1	0	25	0	0	0	0	0
R105h	23	2	0	0	0	24	0	1	0	0	0
R105i	24	1	0	0	0	25	0	0	0	0	0
R105j	20	5	0	0	1	25	0	0	0	0	0
R105A	4	3	0	0	1	7	0	0	0	0	0
R105B	3	1	0	0	0	4	0	0	0	0	0
R105C	3	1	0	0	0	4	0	0	0	0	0
R106	24	1	0	0	3	24	4	0	0	0	0
R107	7	6	0	1	1	13	1	0	0	1	0
R108	12	1	0	1	1	12	0	0	0	1	0
R109	12	1	0	0	0	13	0	0	0	0	0
R110	17	8	0	5	1	22	7	2	2	0	0
R111	13	0	0	0	0	12	1	0	1	0	0
R112	7	0	1	1	1	7	1	0	0	1	0
R113	20	5	0	3	1	23	0	0	2	0	1
R114	17	7	0	8	1	23	0	5	3	0	0
R115	11	2	0	2	0	12	0	3	1	0	0
R116	9	3	0	0	1	12	0	0	0	0	0
R117	10	3	0	1	0	12	1	0	0	0	0
R118	18	1	0	0	0	18	1	0	0	0	0
PKINTRO	8	4	0	0	1	0	1	0	0	0	0
R119	11	0	1	1	0	12	0	0	0	0	0
R120	3	0	0	1	0	2	0	0	1	0	0
R121	2	0	0	1	0	1	0	1	0	0	0
R122	8	4	0	0	0	12	0	0	0	0	0
R123	10	2	0	0	0	12	0	0	0	0	0
R124	8	2	0	6	1	10	0	2	1	1	0
R125	10	2	0	2	2	11	1	1	0	1	0
R126	3	1	0	2	0	4	0	0	0	1	0
R127	10	2	0	1	0	12	0	1	0	0	0
R128	2	1	0	0	0	2	0	0	0	0	0
R129	12	0	0	0	0	11	1	0	0	0	0
R130	2	1	0	2	0	2	0	0	0	1	0
R131	9	3	0	0	0	12	0	0	0	0	0
LFINTRO	18	7	0	0	3	0	0	0	0	0	0

Table A. (continued)

QNUM	INTERVIEWER					RESPONDENT					
	Exact	Minor	Major	Clarify	Affect	Correct	Interrupt	Clarify	Quality	No Adequate	Sensitive
R133	25	0	0	0	0	24	0	0	0	0	0
R134	14	5	0	2	1	18	0	0	0	1	0
R135	16	3	0	1	0	19	0	1	0	1	0
R136	1	0	0	0	0	1	0	0	0	0	0
R137	13	6	0	6	2	19	0	0	0	0	1
R138	3	3	0	0	0	5	0	0	0	0	14
R139	16	4	0	3	0	18	0	2	0	1	1
R140	5	3	0	0	0	8	0	0	0	0	0
R141	10	2	0	1	0	12	0	0	0	0	0
R142	16	2	0	4	0	18	0	2	0	0	0
R143	6	1	0	0	0	7	0	0	1	0	1
R144	1	0	0	1	0	1	0	0	0	0	0
R145	6	0	0	1	1	6	0	1	1	0	0
R146	1	0	0	0	0	1	0	0	0	0	0
R147	11	3	0	0	1	14	0	0	0	0	0
R148	1	0	0	0	0	1	0	0	0	0	0
R149	7	8	0	2	0	15	0	0	0	0	1
R150	0	3	0	0	0	3	0	0	0	0	1
R151	11	4	0	0	0	15	0	0	0	0	0
R153	11	4	0	2	0	11	1	0	4	1	0
R157	3	3	0	1	0	6	1	0	0	1	0
ARINTRO	13	6	0	0	0	0	0	0	0	0	0
R158	14	5	0	0	0	1	0	0	0	0	0
R158a	19	1	0	3	1	18	0	3	1	0	0
R158b	18	1	0	2	0	18	0	1	1	0	0
R158c	17	2	0	1	0	18	0	0	0	1	0
R158d	17	2	0	0	0	19	0	0	1	0	0
R158e	16	2	0	1	0	18	0	0	1	0	0
R158f	17	2	0	0	0	18	0	0	2	0	0
R158g	15	4	0	0	0	17	0	0	1	0	0
R158h	17	2	0	2	0	17	0	1	1	0	0
R158i	15	4	0	2	0	18	0	1	2	1	0
R158j	15	4	0	1	0	19	0	1	0	0	0
R158k	17	2	0	0	0	19	0	0	0	0	0
R158l	18	1	0	1	0	19	0	1	0	0	0
R158m	17	2	0	0	0	19	0	0	0	0	0
R159	12	0	0	0	0	1	0	0	0	0	0
R159a	5	6	0	3	1	11	0	1	0	0	0
R159b	6	5	0	4	0	11	0	2	0	1	0

100

101

Table A. (continued)

QNUM	INTERVIEWER					RESPONDENT					
	Exact	Minor	Major	Clarify	Affect	Correct	Interrupt	Clarify	Quality	No Adequate	Sensitive
R159c	6	4	1	2	0	11	0	0	0	0	0
R159d	4	7	0	0	0	11	0	0	0	0	0
R159e	6	5	0	0	0	11	0	0	0	0	0
R159f	7	4	0	1	0	11	0	2	0	0	0
R159g	7	4	0	0	0	11	0	0	0	0	0
HINTRO	15	4	0	0	0	0	0	0	0	0	0
R160	17	2	0	1	1	18	0	0	0	0	1
R161	13	6	0	0	0	19	0	0	0	0	0
R162	18	1	0	1	1	18	0	1	1	0	0
R163	15	4	0	0	1	19	0	0	0	0	0
R164	0	2	0	1	0	2	0	0	0	0	0
R165	18	1	0	2	0	18	0	2	0	1	0
R166	1	1	0	0	0	2	0	0	0	0	0
R167	13	5	0	9	0	17	0	1	0	0	0
R168	9	9	1	3	1	18	1	0	2	1	1
	2654	658	21	371	88	2738	66	126	140	70	12

APPENDIX C

FREQUENCY OF RATING FOR SCHOOL SAFETY AND DISCIPLINE PARENT QUESTIONNAIRE (SS&D-P)

Table B. Frequency of Rating: SS&D Parent (N=25)

QNUM	INTERVIEWER					RESPONDENT					
	Exact	Minor	Major	Clarify	Affect	Correct	Interrupt	Clarify	Quality	No Adequate	Sensitive
INTRO	0	2	0	0	0	0	0	0	0	0	0
P1	12	1	1	1	3	0	14	1	0	0	0
P2	10	2	3	1	0	9	3	0	0	1	0
P3	14	2	0	3	0	14	0	2	0	1	0
P4	5	0	0	0	0	5	0	0	0	0	0
P6	2	2	0	0	0	4	0	0	0	0	0
P7	1	0	0	0	0	1	0	0	0	0	0
P7A	2	1	1	0	0	4	0	0	0	0	0
P8	2	0	0	0	0	2	0	0	0	0	0
P8A	0	1	1	0	1	2	0	0	0	0	0
P9	5	5	4	2	0	11	3	0	0	1	0
P9A	2	8	4	1	1	12	0	0	0	0	0
PINTRO	3	16	0	0	2	1	0	0	0	0	0
P10	22	3	0	1	1	25	0	0	0	0	0
P11	17	6	0	5	0	21	0	2	2	1	0
P12	3	0	0	0	0	3	0	0	0	0	0
P13	5	1	0	4	0	6	0	0	0	4	0
P14	22	3	0	5	0	25	0	1	2	2	0
P15	17	8	0	6	1	24	0	5	2	1	0
P16	9	14	2	2	1	24	1	0	0	0	0
P17	16	9	0	1	0	25	0	0	0	1	0
P18	17	7	1	5	0	20	6	2	6	0	0
P19	16	8	1	8	1	20	5	3	11	0	0
P20	23	2	0	1	0	25	1	0	0	0	0
PY21	21	3	1	0	0	1	0	1	0	0	0
PY21a	20	5	0	13	0	24	0	3	4	2	0
PY21b	18	7	0	8	1	21	0	1	6	3	0
PY21c	19	6	0	6	1	25	0	4	4	2	0
PY21d	20	5	0	4	1	24	0	2	3	1	0
PY21e	18	7	0	5	0	24	0	2	3	2	0
PY22	20	4	1	16	3	23	0	4	6	3	0
PY23	17	8	0	7	0	23	0	2	4	1	0
PY24	21	3	0	3	3	21	0	2	10	0	0
P25	19	5	1	0	1	22	3	0	2	0	0
SSINTRO	17	8	0	0	0	0	0	0	0	0	0
PY26	20	6	0	1	1	23	0	1	6	1	0
PY27	9	2	0	2	1	11	0	1	1	0	0
PY28	10	1	0	0	1	10	0	0	0	1	0
PY29	16	6	3	2	0	23	3	1	2	2	0

Table B. (continued)

QNUM	INTERVIEWER					RESPONDENT					
	Exact	Minor	Major	Clarify	Affect	Correct	Interrupt	Clarify	Quality	No Adequate	Sensitive
PY30	3	2	0	0	0	4	1	0	2	0	0
PY31	2	2	0	0	0	4	0	0	1	0	0
PY32	3	1	0	1	0	4	0	1	0	0	0
PY33	2	0	0	1	0	2	0	0	0	1	0
PY34	19	3	3	6	0	23	2	2	4	1	0
PY35	11	5	1	1	0	15	1	1	2	0	0
PY36	13	3	0	2	0	16	0	0	1	0	0
PY37	11	4	0	0	1	15	0	0	0	0	0
PY38	3	0	0	0	0	3	0	0	0	0	0
PY39	19	5	0	7	0	23	1	5	2	2	0
PY40	8	1	0	0	0	9	0	0	1	0	0
PY41	6	3	0	0	0	9	0	0	0	0	0
PY42	5	4	0	0	0	9	0	0	0	0	0
PY43	1	0	0	0	0	1	0	0	0	0	0
PY45	12	4	1	5	0	14	3	0	2	3	0
PY46	14	3	0	1	0	16	0	0	7	0	0
PY47	18	4	0	5	0	20	0	3	7	2	0
PY48	5	1	0	1	0	4	0	0	2	1	0
PY49	5	1	0	0	1	6	0	0	0	0	0
PY50	2	3	0	0	0	4	0	0	1	0	0
PY53	17	5	0	5	1	21	0	1	5	0	0
P54	19	5	0	0	0	0	0	0	0	0	0
P54a	18	7	0	1	0	23	0	1	1	3	0
P54b	19	6	0	4	2	23	0	2	1	2	0
P54c	17	8	0	3	1	24	0	1	3	1	0
P54d	17	8	0	1	1	24	1	0	1	1	0
P54e	15	10	0	1	0	24	0	1	1	0	0
PY55	20	4	0	0	0	0	2	0	0	0	0
PY55a	25	0	0	3	0	22	0	0	4	2	0
PY55b	18	7	0	0	0	25	0	0	3	0	0
PY55c	18	7	0	0	0	23	0	0	8	0	0
PY55d	19	6	0	1	0	22	0	1	4	0	0
PY55e	18	7	0	2	2	20	0	2	15	1	0
PY55f	7	17	1	2	0	24	0	0	9	1	0
PY55g	16	9	0	4	0	21	0	2	7	1	0
PY55h	15	10	0	0	1	23	0	0	5	0	0
SDINTRO	20	5	0	0	0	0	0	0	0	0	0
P56	20	5	0	2	2	25	0	1	2	0	0
P57	16	8	0	0	0	22	2	0	2	0	0

Table B. (continued)

QNUM	INTERVIEWER					RESPONDENT					
	Exact	Minor	Major	Clarify	Affect	Correct	Interrupt	Clarify	Quality	No Adequate	Sensitive
P58	1	0	0	0	0	1	0	0	0	0	0
P59	18	5	0	1	1	21	1	1	5	0	0
TADINTRO	15	6	0	0	0	0	0	0	0	0	0
PY62	18	4	0	1	0	0	0	0	0	0	0
PY62a	22	0	0	6	0	21	0	2	5	0	0
PY62b	14	8	0	9	1	20	0	3	4	3	0
PY62c	12	10	0	3	1	21	0	1	4	2	0
PY62d	18	4	0	7	0	19	0	3	8	4	0
PY62e	11	11	0	5	0	21	0	1	6	2	0
PY63	18	4	0	3	1	21	1	1	1	0	0
PY64	13	8	1	0	0	19	5	0	1	0	0
P65	4	3	1	0	0	7	2	0	0	0	0
PY66	18	3	1	0	0	22	0	0	2	0	0
P67	21	4	0	6	0	22	1	5	7	0	0
PY68	9	4	2	0	0	1	0	0	0	0	0
PY68a	14	1	0	0	0	14	0	0	4	0	0
PY68b	8	7	0	3	0	13	0	2	4	3	0
PY68c	11	4	0	1	0	15	0	0	5	0	0
PY68d	11	4	0	1	0	14	0	0	4	0	0
CCINTRO	18	7	0	0	0	0	0	0	0	0	0
P70	20	5	0	6	1	23	1	3	4	0	0
P71	22	2	0	0	0	24	0	0	0	0	0
P72	20	1	0	0	2	21	0	0	0	0	0
P73	2	0	0	0	0	2	0	0	0	0	0
P74	13	5	2	0	0	19	0	0	0	1	0
P75	20	4	0	9	4	24	0	1	1	0	0
P77	13	8	0	3	1	21	3	1	0	0	0
P78	11	9	1	1	1	19	3	0	1	0	0
P79	12	11	1	5	1	21	3	0	2	2	1
P80	2	2	0	0	0	3	0	0	1	0	0
P81	19	5	0	3	0	24	1	3	1	0	0
P82	22	2	0	3	0	23	0	0	3	1	0
P83	17	7	0	0	0	0	0	0	0	0	0
P83a	22	2	0	7	0	23	0	3	4	0	0
P83b	17	7	0	7	0	22	0	1	2	1	0
P83c	20	4	0	6	0	24	0	1	1	0	0
P83d	19	5	0	7	0	24	0	2	1	0	0
PY84	21	3	0	0	0	2	0	0	0	0	0
PY84a	22	2	0	1	0	24	0	0	0	0	0

Table B. (continued)

QNUM	INTERVIEWER					RESPONDENT					
	Exact	Minor	Major	Clarify	Affect	Correct	Interrupt	Clarify	Quality	No Adequate	Sensitive
PY84b	17	7	0	2	1	23	0	0	2	1	0
PY84c	12	11	0	2	1	21	0	0	5	0	0
PY85	18	6	0	2	0	22	0	2	2	0	0
PY86	19	5	0	2	0	24	0	2	1	0	0
PY87	16	8	0	1	0	24	0	0	3	0	0
PY88	20	4	0	0	0	1	0	0	0	0	0
PY88a	22	2	0	0	0	24	0	0	1	0	0
PY88b	19	5	0	1	0	24	0	0	0	0	0
PY88c	17	7	0	1	1	23	0	0	0	1	0
P89	20	4	0	0	0	0	0	0	0	0	0
P89a	22	2	0	1	0	23	3	1	1	1	0
P89b	13	10	1	0	0	21	1	0	1	0	0
P89c	15	8	1	1	0	23	2	0	1	0	0
P90	20	4	0	1	1	24	0	1	1	0	0
P91	18	5	1	1	0	24	0	1	0	0	0
PY92	17	4	0	1	0	21	0	0	1	0	0
PY93	17	4	0	8	1	18	0	0	3	4	0
PY94	8	8	5	3	0	17	7	2	1	1	0
PY95	12	9	0	12	1	20	2	3	3	2	0
PY96	11	12	1	3	1	20	5	1	2	2	0
PY97	13	11	0	5	1	22	1	2	2	0	1
LFINTRO	9	9	0	0	0	0	0	0	0	0	0
P99	16	3	0	8	0	18	0	0	1	0	1
P100	1	1	0	0	0	2	0	0	0	0	1
P101	14	5	0	1	0	19	0	1	0	0	1
P102	3	1	0	3	1	4	0	1	0	2	1
P103	10	5	0	5	0	13	0	1	2	2	0
P104	3	1	0	1	0	3	0	0	0	0	1
P105	1	0	0	0	0	1	0	0	0	0	0
P106	1	1	1	1	1	2	0	0	0	1	1
P107	10	6	0	9	1	16	0	1	2	2	0
P108	0	0	1	0	1	1	0	0	0	0	0
P109	10	6	0	0	0	15	1	0	0	0	0
P111	7	8	1	8	2	15	0	1	4	2	0
HINTRO	12	6	0	0	0	0	0	0	0	0	0
P116	15	4	0	1	0	19	1	0	0	1	0
P117	12	6	0	0	0	18	0	0	1	0	0
P118	14	5	0	0	1	19	1	0	0	0	0
P119	4	3	0	2	0	7	0	0	0	0	0

111

112

Table B. (continued)

QNUM	INTERVIEWER					RESPONDENT					
	Exact	Minor	Major	Clarify	Affect	Correct	Interrupt	Clarify	Quality	No Adequate	Sensitive
P120	14	4	0	2	0	18	1	1	1	0	0
P121	1	1	0	1	0	2	0	0	0	0	0
P122	12	7	0	11	0	18	0	0	0	0	0
P123	6	13	0	4	1	19	5	1	2	0	0
	2095	772	51	382	63	2402	90	118	301	93	8

APPENDIX D

FREQUENCY OF RATING FOR SCHOOL SAFETY AND DISCIPLINE YOUTH QUESTIONNAIRE (SS&D-Y)

Table C. Frequency of Rating: SS&D YOUTH (N=20)

	INTERVIEWER					RESPONDENT					
QNUM	Exact	Minor	Major	Clarify	Affect	Correct	Interrupt	Clarify	Quality	No Adequate	Sensitive
P20	0	1	0	0	0	0	0	0	0	0	0
YINTRO	1	7	0	0	0	0	0	0	0	0	0
PY21	14	5	0	0	0	0	0	0	0	0	0
PY21a	17	2	0	11	1	17	0	2	5	2	0
PY21b	17	3	0	3	1	17	0	0	3	1	0
PY21c	18	2	0	1	0	19	0	1	1	1	0
PY21d	17	3	0	1	0	18	0	1	4	0	0
PY21e	16	5	0	2	0	20	0	0	0	1	0
PY22	15	5	0	10	0	19	0	1	2	4	0
PY23	14	6	0	4	0	19	0	0	3	2	0
PY24	16	2	0	2	1	16	0	1	2	1	0
SSINTRO	16	3	0	0	0	0	0	0	0	0	0
PY26	18	2	0	3	1	16	0	1	3	1	0
PY27	10	2	0	1	1	12	0	0	0	1	0
PY28	8	3	0	0	1	12	0	0	0	0	0
PY29	11	6	3	1	0	19	1	0	0	1	0
PY30	3	0	0	1	0	3	0	0	0	0	0
PY31	1	2	0	1	0	3	0	0	0	0	0
PY32	2	1	0	0	0	3	0	0	0	0	0
PY33	0	1	0	1	0	1	0	1	0	0	0
PY34	17	3	0	2	0	16	1	0	4	0	0
PY35	9	1	0	1	0	10	0	0	0	0	0
PY36	8	1	0	1	0	10	0	0	0	0	0
PY37	9	1	0	1	0	10	0	0	0	0	0
PY38	2	0	0	0	0	3	0	0	0	0	0
PY39	18	1	0	2	0	19	0	2	0	0	0
PY40	5	0	0	2	0	5	0	0	0	0	0
PY41	3	2	0	1	0	5	0	0	0	0	0
PY42	4	1	0	1	0	5	0	0	0	0	0
Y44	16	3	1	0	0	2	0	0	0	0	0
Y44a	11	8	0	1	0	20	0	0	1	0	0
Y44b	13	6	0	0	0	19	0	0	1	0	0
Y44c	12	7	0	2	0	20	0	0	0	1	0
Y44d	13	7	0	1	0	20	0	0	0	1	0
Y44e	14	6	0	4	0	18	0	2	3	0	0
Y44f	12	7	0	5	0	19	0	2	1	0	0
PY46	12	3	0	1	0	13	0	0	3	1	0
PY47	17	3	0	4	1	17	0	0	3	2	0
PY48	9	0	0	0	0	8	0	0	1	1	0

Table C. (continued)

QNUM	INTERVIEWER					RESPONDENT					
	Exact	Minor	Major	Clarify	Affect	Correct	Interrupt	Clarify	Quality	No Adequate	Sensitive
PY49	8	1	0	0	1	9	0	0	0	1	0
PY50	7	1	0	0	0	8	0	0	0	0	0
Y51	16	4	0	0	0	20	0	0	0	0	0
Y52	1	0	0	0	0	1	0	0	0	0	0
Y52a	1	0	0	0	0	1	0	0	0	0	0
Y52b	1	0	0	0	0	1	0	0	0	0	0
Y52c	1	0	0	0	0	1	0	0	0	0	0
Y52d	1	0	0	0	0	1	0	0	0	0	0
Y52e	1	0	0	0	0	1	0	0	0	0	0
Y52f	1	0	0	0	0	1	0	0	0	0	0
Y52g	0	1	0	0	1	1	0	0	0	0	0
Y52h	1	0	0	0	0	1	0	0	0	0	0
Y52i	1	0	0	0	0	1	0	0	0	0	0
PY53	18	2	0	0	1	20	0	0	3	0	0
PY55	17	4	0	0	0	0	1	0	0	0	0
PY55a	20	0	0	2	1	18	0	0	2	1	0
PY55b	11	9	0	1	0	20	0	0	0	1	0
PY55c	13	7	0	3	0	19	0	1	1	0	0
PY55d	11	9	0	2	0	17	0	0	3	1	0
PY55e	12	8	0	2	1	20	0	2	0	0	0
PY55f	4	16	0	1	0	18	0	0	2	2	0
PY55g	12	8	0	1	1	17	0	0	4	0	0
PY55h	12	8	0	0	0	20	0	0	0	0	0
Y60	10	9	0	0	0	1	0	0	0	0	0
Y60a	15	5	0	3	0	19	0	0	2	1	0
Y60b	15	5	0	2	0	19	0	1	0	0	0
Y60c	19	1	0	3	0	19	0	2	1	1	0
Y60d	19	1	0	5	0	19	0	2	1	0	0
Y60e	18	2	0	1	0	18	0	0	1	1	0
Y60f	15	5	0	2	0	18	0	0	1	0	0
TADINTRO	17	2	0	0	0	0	0	0	0	0	0
Y61	19	1	0	0	0	0	0	0	0	1	0
Y61a	19	1	0	4	1	19	0	0	1	1	0
Y61b	13	7	0	2	0	19	0	2	0	1	0
Y61c	14	6	0	2	0	19	0	0	1	1	0
Y61d	12	8	0	0	1	18	0	0	2	2	0
PY62	13	6	0	1	1	1	1	0	0	0	0
PY62a	19	1	0	5	0	17	0	0	4	1	0
PY62b	9	10	0	8	2	20	0	2	0	2	0

Table C. (continued)

	INTERVIEWER					RESPONDENT					
QNUM	Exact	Minor	Major	Clarify	Affect	Correct	Interrupt	Clarify	Quality	No Adequate	Sensitive
PY62c	13	6	0	1	1	20	0	1	0	1	0
PY62d	12	7	0	2	0	19	0	0	1	1	0
PY62e	12	6	0	4	1	19	0	0	2	1	0
PY63	16	3	0	1	0	20	0	1	0	0	0
PY64	14	5	0	0	0	20	0	1	0	0	0
P65	1	0	0	0	0	1	0	0	0	0	0
PY66	16	3	0	2	0	19	0	1	1	1	0
PY68	13	4	2	0	0	1	0	0	0	0	0
PY68a	16	3	0	2	1	19	0	0	0	2	0
PY68b	6	13	0	2	1	19	0	2	2	1	0
PY68c	12	8	0	1	0	19	0	0	1	1	0
PY68d	15	5	0	0	0	18	0	0	2	0	0
Y69	14	5	0	3	0	18	0	0	0	3	0
PY84	16	2	0	0	0	0	0	0	0	0	0
PY84a	17	1	0	0	0	19	0	0	0	0	0
PY84b	11	7	0	1	0	19	0	1	0	1	0
PY84c	7	11	0	0	0	19	0	0	0	0	0
PY85	15	3	0	1	0	17	0	1	2	0	0
PY86	12	6	0	0	0	19	0	0	0	0	0
PY87	17	3	0	0	0	20	0	0	0	0	0
PY88	12	7	0	0	0	5	0	0	0	0	0
PY88a	17	2	0	0	0	19	0	0	0	0	0
PY88b	15	4	0	1	0	19	0	0	0	0	0
PY88c	15	3	0	0	0	19	0	0	0	0	0
P91	0	0	0	0	0	1	0	0	0	0	0
PY92	13	5	1	2	0	19	0	1	0	0	0
PY93	14	5	0	8	4	16	0	2	6	3	0
PY94	6	14	0	4	0	18	1	1	1	2	0
PY95	12	8	0	6	1	19	0	1	3	5	0
PY96	9	11	0	4	0	18	1	0	0	1	0
PY97	13	7	0	1	0	20	0	0	1	0	0
Y98	16	4	0	4	1	18	0	3	2	0	0
	1231	440	7	171	28	1411	6	41	93	62	0

Listing of NCES Working Papers to Date

Please contact Ruth R. Harris at (202) 219-1831
if you are interested in any of the following papers

Number	Title	Contact
94-01 (July)	Schools and Staffing Survey (SASS) Papers Presented at Meetings of the American Statistical Association	Dan Kasprzyk
94-02 (July)	Generalized Variance Estimate for Schools and Staffing Survey (SASS)	Dan Kasprzyk
94-03 (July)	1991 Schools and Staffing Survey (SASS) Reinterview Response Variance Report	Dan Kasprzyk
94-04 (July)	The Accuracy of Teachers' Self-reports on their Postsecondary Education: Teacher Transcript Study, Schools and Staffing Survey	Dan Kasprzyk
94-05 (July)	Cost-of-Education Differentials Across the States	William Fowler
94-06 (July)	Six Papers on Teachers from the 1990-91 Schools and Staffing Survey and Other Related Surveys	Dan Kasprzyk
94-07 (Nov.)	Data Comparability and Public Policy: New Interest in Public Library Data Papers Presented at Meetings of the American Statistical Association	Carrol Kindel
95-01 (Jan.)	Schools and Staffing Survey: 1994 Papers Presented at the 1994 Meeting of the American Statistical Association	Dan Kasprzyk
95-02 (Jan.)	QED Estimates of the 1990-91 Schools and Staffing Survey: Deriving and Comparing QED School Estimates with CCD Estimates	Dan Kasprzyk
95-03 (Jan.)	Schools and Staffing Survey: 1990-91 SASS Cross-Questionnaire Analysis	Dan Kasprzyk
95-04 (Jan.)	National Education Longitudinal Study of 1988: Second Follow-up Questionnaire Content Areas and Research Issues	Jeffrey Owings
95-05 (Jan.)	National Education Longitudinal Study of 1988: Conducting Trend Analyses of NLS-72, HS&B, and NELS:88 Seniors	Jeffrey Owings

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
95-06 (Jan.)	National Education Longitudinal Study of 1988: Conducting Cross-Cohort Comparisons Using HS&B, NAEP, and NELS:88 Academic Transcript Data	Jeffrey Owings
95-07 (Jan.)	National Education Longitudinal Study of 1988: Conducting Trend Analyses HS&B and NELS:88 Sophomore Cohort Dropouts	Jeffrey Owings
95-08 (Feb.)	CCD Adjustment to the 1990-91 SASS: A Comparison of Estimates	Dan Kasprzyk
95-09 (Feb.)	The Results of the 1993 Teacher List Validation Study (TLVS)	Dan Kasprzyk
95-10 (Feb.)	The Results of the 1991-92 Teacher Follow-up Survey (TFS) Reinterview and Extensive Reconciliation	Dan Kasprzyk
95-11 (Mar.)	Measuring Instruction, Curriculum Content, and Instructional Resources: The Status of Recent Work	Sharon Bobbitt & John Ralph
95-12 (Mar.)	Rural Education Data User's Guide	Samuel Peng
95-13 (Mar.)	Assessing Students with Disabilities and Limited English Proficiency	James Houser
95-14 (Mar.)	Empirical Evaluation of Social, Psychological, & Educational Construct Variables Used in NCES Surveys	Samuel Peng
95-15 (Apr.)	Classroom Instructional Processes: A Review of Existing Measurement Approaches and Their Applicability for the Teacher Follow-up Survey	Sharon Bobbitt
95-16 (Apr.)	Intersurvey Consistency in NCES Private School Surveys	Steven Kaufman
95-17 (May)	Estimates of Expenditures for Private K-12 Schools	Stephen Broughman
95-18 (Nov.)	An Agenda for Research on Teachers and Schools: Revisiting NCES' Schools and Staffing Survey	Dan Kasprzyk
96-01 (Jan.)	Methodological Issues in the Study of Teachers' Careers: Critical Features of a Truly Longitudinal Study	Dan Kasprzyk

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
96-02 (Feb.)	Schools and Staffing Survey (SASS): 1995 Selected papers presented at the 1995 Meeting of the American Statistical Association	Dan Kasprzyk
96-03 (Feb.)	National Education Longitudinal Study of 1988 (NELS:88) Research Framework and Issues	Jeffrey Owings
96-04 (Feb.)	Census Mapping Project/School District Data Book	Tai Phan
96-05 (Feb.)	Cognitive Research on the Teacher Listing Form for the Schools and Staffing Survey	Dan Kasprzyk
96-06 (Mar.)	The Schools and Staffing Survey (SASS) for 1998-99: Design Recommendations to Inform Broad Education Policy	Dan Kasprzyk
96-07 (Mar.)	Should SASS Measure Instructional Processes and Teacher Effectiveness?	Dan Kasprzyk
96-08 (Apr.)	How Accurate are Teacher Judgments of Students' Academic Performance?	Jerry West
96-09 (Apr.)	Making Data Relevant for Policy Discussions: Redesigning the School Administrator Questionnaire for the 1998-99 SASS	Dan Kasprzyk
96-10 (Apr.)	1998-99 Schools and Staffing Survey: Issues Related to Survey Depth	Dan Kasprzyk
96-11 (June)	Towards an Organizational Database on America's Schools: A Proposal for the Future of SASS, with comments on School Reform, Governance, and Finance	Dan Kasprzyk
96-12 (June)	Predictors of Retention, Transfer, and Attrition of Special and General Education Teachers: Data from the 1989 Teacher Followup Survey	Dan Kasprzyk
96-13 (June)	Estimation of Response Bias in the NHES:95 Adult Education Survey	Steven Kaufman
96-14 (June)	The 1995 National Household Education Survey: Reinterview Results for the Adult Education Component	Steven Kaufman

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
96-15 (June)	Nested Structures: District-Level Data in the Schools and Staffing Survey	Dan Kasprzyk
96-16 (June)	Strategies for Collecting Finance Data from Private Schools	Stephen Broughman
96-17 (July)	National Postsecondary Student Aid Study: 1996 Field Test Methodology Report	Andrew G. Malizio
96-18 (Aug.)	Assessment of Social Competence, Adaptive Behaviors, and Approaches to Learning with Young Children	Jerry West
96-19 (Oct.)	Assessment and Analysis of School-Level Expenditures	William Fowler
96-20 (Oct.)	1991 National Household Education Survey (NHES:91) Questionnaires: Screener, Early Childhood Education, and Adult Education	Kathryn Chandler
96-21 (Oct.)	1993 National Household Education Survey (NHES:93) Questionnaires: Screener, School Readiness, and School Safety and Discipline	Kathryn Chandler
96-22 (Oct.)	1995 National Household Education Survey (NHES:95) Questionnaires: Screener, Early Childhood Program Participation, and Adult Education	Kathryn Chandler
96-23 (Oct.)	Linking Student Data to SASS: Why, When, How	Dan Kasprzyk
96-24 (Oct.)	National Assessments of Teacher Quality	Dan Kasprzyk
96-25 (Oct.)	Measures of Inservice Professional Development: Suggested Items for the 1998-1999 Schools and Staffing Survey	Dan Kasprzyk
96-26 (Nov.)	Improving the Coverage of Private Elementary-Secondary Schools	Steven Kaufman
96-27 (Nov.)	Intersurvey Consistency in NCES Private School Surveys for 1993-94	Steven Kaufman

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
96-28 (Nov.)	Student Learning, Teaching Quality, and Professional Development: Theoretical Linkages, Current Measurement, and Recommendations for Future Data Collection	Mary Rollefson
96-29 (Nov.)	Undercoverage Bias in Estimates of Characteristics of Adults and 0- to 2-Year-Olds in the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
96-30 (Dec.)	Comparison of Estimates from the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
97-01 (Feb.)	Schools and Staffing Survey (SASS): Selected papers presented at the 1996 Meeting of the American Statistical Association	Dan Kasprzyk
97-02 (Feb.)	Telephone Coverage Bias and Recorded Interviews in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler

BEST COPY AVAILABLE